River Road ILF Project Site
LRB-2019-01207

Prepared by:
Ducks Unlimited New York In-Lieu Fee Program
LRB-2010-00673 (ILFP)

DUCKS UNLIMITED | GREAT LAKES & ATLANTIC REGION

To be considered by:
United States Army Corps of Engineers
Interagency Review Team Chairs

Buffalo District
1776 Niagara Street
Buffalo, NY 14207-3199

DATE: 30 June 2021

Table of Contents

1. Introduction and Objectives....8
2. Site Selection....8
2.1 Site Description....8
3. Site Protection Instrument....9
4. Determination of Credits....11
5. Baseline Ecological Characteristics....14
5.1 Historic and Existing Plant Communities, Including Wetlands....14
5.2 Site Land Use History, Including Structures....18
5.3 Soil Descriptions....20
5.4 Animal and Plant Species Including Endangered Species....22
6. Mitigation Work Plan....26
6.1 Geographic Boundaries....26
6.2 Sources of Water, Connections to Existing Waters and Upland Runoff....26
6.3 Invasive Species....28
6.4 Construction Methods, Timing and Sequencing....31
6.5 Grading Plan, Including Elevations and Slopes of Substrate....32
6.6 Methods for Establishing Desired Plant Community....32
6.7 Soil Management and Erosion Control Measures....34
7. Maintenance Plan....34
8. Performance Standards....35
8.1 First Interim Goal Releases 15% of Credits When:....35
8.2 Second Interim Goal Releases 15% of Credits When:....36
8.3 Third Interim Goal Releases 15% of Credits When:....36
8.4 Final Goal Releases 25% at The End of the 10-Year Monitoring Period....37
8.5 Wetland Hydrology and Hydric Soils....38
9. Monitoring Requirements....39
9.1 Monitoring Report Requirements....39
9.2 Reporting Schedule....40
10. Long-term Management Plan, Including Financial Arrangements....41
11. Adaptive Management Plan, Including Addressing Invasive Species Control....43
12. Financial Assurances....44
References....45

List of Figures

Figure 1 Site Location and Service Area. 5
Figure 2 Proposed ILF Site. 6
Figure 3 View of the Site. 7
Figure 4 Historical Aerial Photos from River Road. 19
Figure 5 Soils Map. 21
Figure 6 Ground Water Data. 27
Figure 7 Invasive Species Map. 29

List of Tables

Table 1 Credit Generation 12
Table 2 Wildlife and Plant Species Identified 22
Table 3 Planting List 33
Table 4 Reporting Schedule 40
Table 5 Anticipated Long-term Management Needs 42

List of Appendices

Appendix A. Wetland Delineation Report 46
Appendix B. Mitigation Work Plan 65
Appendix C. Cultural Resources Review 66
Appendix D. Threatened and Endangered Species Review 67
Appendix E. Conservation Easement Boundary 68
Appendix F. Budget for River Rd in the Niagara River Service Area. 69
Appendix G. Default and Closure Provisions 70

The Ducks Unlimited (DU) mission focuses on protecting and restoring wetland resources critical to sustaining North America's waterfowl populations. DU utilizes a scientific approach to prioritize its conservation and mitigation activities. At a high-level, conservation priorities are identified by a team of international biologists made up of waterfowl and conservation experts spanning government, academia, and NGO sectors as described in the North American Waterfowl Management Plan (NAWAMP; United States Fish and Wildlife Service 1986, 2012). DU's applied version of this plan, The International Conservation Plan identifies portions of New York as priority landscapes for waterfowl conservation (Ducks Unlimited, 2005, 2019). Furthermore, the northeastern United States and adjacent Canada support an estimated 7.6 million breeding waterfowl, 2.7 million wintering waterfowl, and four to five million migrating waterfowl.

DU established the New York In-Lieu Fee Program (DU-NY ILF Program) to provide a third-party compensatory mitigation option for unavoidable wetland impacts in this priority landscape. DU has developed a suite of GIS-planning tools to aide in the identification of wetland restoration and protection opportunities within these Service Areas following techniques described by Hunter et al. 2012 and Raney and Leopold 2018. DU's top-down prioritization of landscapes and significant wetland features within those landscapes enables DU to identify priority areas for wetland conservation and mitigation activities on a watershed-scale. DU thoroughly evaluated wetland restoration opportunities in the Niagara River Service Area (SA) (Figure 1) prior to coordinating the selection of this site with the IRT.

This plan describes an approach to provide mitigation at a 76.32-acre "Site" (River Road) protected by Wetlands America Trust. (WAT), a fully owned subsidiary of DU (Figures 2 and 3) in the Niagara River Service Area. Over 300 bird species use the Niagara River corridor. These include 27 species whose survival is at some level of risk, 4 species whose concentrations on the Niagara River are globally significant, i.e., greater than 1% of their global populations (Bonaparte's gull, herring gull, canvasback and common merganser), and several species whose numbers are approaching global significance, including common goldeneye and greater scaup (Wooster and Matthies 2008). This mitigation plan has been prepared and will be implemented by DU in accordance with 33 CFR 332.4, the "U.S. Army Corps of Engineers New York District Compensatory Mitigation Guidelines" and the "Guidelines for Mitigation Banking in Ohio" (currently used by the U.S. Army Corps of Engineers Buffalo District). A Mitigation Plan is submitted for public comment followed by Interagency Review Team review for potential approval.

Figure 1 Site Location and Service Area.
The SA corresponds to a 8-digit HUC 04120104.

Figure 2 Proposed ILF Site.
The Site is near the Niagara River. Lake Ontario (not shown) lies just over a mile to the north of the site.
The Site is hydrologically connected through a series of shallow ditches through the property to the west to the Niagara River.

Figure 3 View of the Site.
Wetland America Trust, a wholly owned subsidiary of Ducks Unlimited owns the property. The property is accessed via an easement from the West. The neighboring property is a housing subdivision. Provisions to access the Site were recorded to the deed and took into account a future cul-de-sac where access ties into the existing easement.

1. Introduction and Objectives

The primary goal of the River Road Mitigation Site (hereafter: Site) is to provide wetland reestablishment, rehabilitation, enhancement, and preservation to compensate for wetland loss. More specifically this site provides an opportunity to:

- Replace wetland functions lost at impact sites
- Reestablish wetland acreage
- Aquatic resource delineation broken out by aquatic resource type (e.g. PEM, PSS, PFO, deepwater habitat, vegetated shallows, riverine resources).

- Provide new habitat and or foraging opportunities for wildlife including species of greatest conservation need
- Provide a buffer and improve habitat conditions along an important river
- Provide habitat for migratory waterfowl
- Provide greenspace for use by the public
- Permanently protect the site for conservation purposes

2. Site Selection

2.1 Site Description

The Site is located at Latitude: 43°13'23.58" N and Longitude: 79°2'17.47" W off of River Road in the Town of Porter, Niagara County, New York in the Niagara River Service Area (8-digit HUC 04120104) (Figure 1). This site was selected because of its unique potential to reestablish wetland communities adjacent to the Niagara River (Figure 2). During initial site inspections, evidence of agricultural drainage indicated suitable conditions for reestablishing wetland acreage. Hydrological conditions are described further in Section 5.2, in the Wetland Delineation Report (Appendix A), and are shown in the Work Plan (Appendix B). The Site spans a 76.32-acre property protected by WAT. A conservation easement encompassing the entire Site will be established to permanently protect natural areas on this property.

The wetland mitigation plan takes into consideration priorities identified in the New York State Wildlife Action Plan (SWAP) (NYSDEC, 2015). These include restoration of habitats identified in the Great Lakes Action Agenda, the restoration and enhancement of riparian buffers, and the control of invasive and problematic native plant species. In addition to the wetland restoration activities at the Site, upland buffer areas will be planted to native upland trees and shrubs. The Site will provide important benefits to water quality. The Waterbody Inventory/Priority Waterbodies List assessment of the lower Niagara River states that stormwater runoff from urban and residential development within the watershed has impaired water quality and habitat within the river (NYSDEC, 2010). Much of the surrounding abandoned agricultural land has been developed for residential use. Protection and restoration of this property will improve water quality within the watershed, as wetlands are particularly effective nutrient sinks (e.g., Mitsch and Gosselink 2000).

The Sites' position near both the Niagara River and Lake Ontario suggest the site may provide an important spring feeding ground for migratory waterfowl. Mallards were observed at the site in April of 2018. Several bird species of greatest conservation need (SGCN) identified in the State Wildlife Action

Plan (SWAP, NYSDEC, 2015) have been observed in the vicinity of the Site during past surveys (McGowan and Corwin 2008). Specifically, the objectives of this plan are to:

- re-establish 0.45 acres of palustrine emergent (PEM) wetlands
- re-establish 2.94 acres of palustrine scrub-shrub (PSS) wetlands
- re-establish 7.80 acres of palustrine forested (PFO) wetlands
- rehabilitate 1.85 acres of PEM wetlands
- rehabilitate 2.91 acres of PSS wetlands
- rehabilitate 1.30 acres of PFO wetlands
- rehabilitate 0.38 acres of upland buffer
- enhance 0.43 acres of PEM wetlands
- enhance 18.52 acres of PFO wetlands
- enhance 4.23 acres PFO mosaic
- re-establish 1.81 acres PFO mosaic
- preserve 0.15 acres of PEM wetlands
- preserve 30.88 acres of PFO wetlands
- preserve 1.59 acres of upland buffer

75.24 acres of habitat will be preserved or restored through this project

3. Site Protection Instrument

The Site is owned by Wetlands America Trust, Inc. (WAT). WAT, a wholly owned subsidiary of DU, is a non-profit conservation organization that is an Accredited Land Trust. Ownership of the Site by WAT meets the site protection requirements of 332.7(a)(1). Signs shall be erected and maintained that identify the mitigation site for conservation purposes.

DU will transfer ownership to a local land-trust as the Long-term Steward of the property. It is anticipated that the Western New York Land Conservancy (WNYLC) will be the Long-term Steward. WNYLC has nearby conservation holdings, making them knowledgeable about the types of threats and management concerns that may arise during long-term management of this site. In the event WNYLC is unable to serve as the Long-term Steward, DU will stand in this role until a Long-term Steward acceptable to the USACE and IRT is identified. Upon transfer of the property, WAT will retain a perpetual Conservation Easement on the Site in a form approved by the Corps of Engineers. An endowment will be established with funds sufficient to support annual monitoring of the Conservation Easement, and a separate endowment will be established to support Long-term Stewardship activities identified in the Long-Term Management Plan. Any transfer of the property or transfer of interest in the Mitigation Property from the Sponsor to another party requires IRT consultation and USACE approval. Any such sale or conveyance made without the prior written concurrence of USACE constitutes default and USACE may take action accordingly.

With the exception of activities approved in this Plan and the associated permit affirmations, or activities approved by the USACE, no further alterations to the site shall occur. Prohibited alterations include but are not limited to:

1. **General**. There shall be no future fillings, flooding, excavating, mining, or drilling; no removal of natural materials (soil, sand, gravel, rock, minerals, etc.); no dumping of materials; and no alteration of the topography which would materially affect the Protected Property in any manner, except as authorized by the Permit, ILFP Instrument, Instrument Amendment, and any modifications thereof.
2. **Waters and Wetlands**. In addition to the general restrictions above, within the Protected Property there shall be no draining, dredging, damming, or impounding; no changing the grade or elevation, impairing the flow or circulation of waters, or reducing the reach of waters; and no other discharges or activity requiring a permit under applicable water pollution control laws and regulations, except as authorized by the Permit, ILFP Instrument, Instrument Amendment, and any modifications thereof.
3. **Trees/Vegetation**. On the Protected Property there shall be no clearing, burning, cutting, or destroying of trees or vegetation, except as may be necessary to protect public health or safety or as authorized by the Permit, ILFP Instrument, Instrument Amendment, and any modifications thereof; there shall be no planting or introduction of non-native or exotic species of trees or vegetation.
4. **Uses**. No agricultural, animal husbandry, industrial, residential development, mining, logging, or commercial activity shall be undertaken or allowed on the Protected Property.
5. **Structures**. There shall be no construction, erection, or placement of buildings, billboards, or any other structures, to include fences, parking lots, trailers, mobile homes, camping accommodations, or recreational vehicles, or additions to existing structures, on the Protected Property, except as authorized by the Permit, ILFP Instrument, Instrument Amendment, and any modifications thereof.
6. **New Roads**. There shall be no construction of new roads, trails, or walkways on the Protected Property without the prior written approval (including approval of the manner of construction) of DU, WAT and the USACE.
7. **Utilities**. There shall be no construction or placement of utilities or related facilities (including telecommunications towers and antennas) on the Protected Property without the prior written approval (including approval of the manner of construction) of DU, WAT and the USACE.
8. **Pest Control**. There shall be no application of pesticides or biological controls, including controls of problem vegetation, on the Protected Property without prior written approval (including approval of the manner of application) of DU, WAT and the USACE, or as authorized by the Permit, ILFP Instrument, Instrument Amendment, and any modifications thereof.
9. **Vehicular Use**. There shall be no use of any motorized vehicle or motorized equipment, and no use of any non-motorized bicycle anywhere on the Protected Property, except in the case of emergency, for the purpose of enforcement of applicable laws and regulations, for the purpose of monitoring compliance with the purposes of this Conservation Easement, or as authorized by the Permit, ILFP Instrument, Instrument Amendment, and any modifications thereof.
10. **Subdivision**. There shall be no division or subdivision of the Protected Property.
11. **Other Prohibitions**. Any other use of, or activity on, the Protected Property which is or may become inconsistent with the purposes of the Conservation Easement, the preservation of the Protected Property substantially in its natural condition, or the protection of its environmental systems, is prohibited, except as authorized by the Permit, ILFP Instrument, Instrument Amendment, and any modifications thereof.

DU will also transfer funds to the Long-term Steward for the establishment of a stewardship endowment to be used for long-term monitoring and management of the site according to the long-term management plan (Described further in Section 10).

4. Determination of Credits

The IRT will determine credits based on wetland and upland buffer acres that meet or exceed performance standards, described in Section 8, and the credit ratios of the ILF Instrument as shown in Table 1. A credit generation table is provided in this plan and acreages will be modified as monitoring provides specific information on the size and quality of the wetlands and upland buffers being developed. Should areas not meet all of the performance criteria described in Section 8 at the end of the 10-year monitoring period and after additional monitoring and corrective action is employed, the program sponsor may request more time to achieve goals, request a modification to the instrument, or request that the IRT consider an appropriate reduction in credit generation, or the Corps of Engineers may require additional monitoring/corrective action at the ILF Site. The program sponsor anticipates the mitigation site will generate between 17 and 23.798 credits based on the following ratios and acreages for each mitigation activity. Deepwater aquatic habitats and/or vegetated shallows will only be credited where they equal 10% or less of the total wetland reestablishment and rehabilitation areas on the site and are part of a well-integrated complex. Deepwater aquatic habitats and vegetated shallows do not meet Corps the definition of wetland and will thereby will not be credited the same as wetlands. Deepwater aquatic habitat is defined as any open water area that is either a) permanently inundated at mean annual water depths >6.6 ft, lacks soil, and/or is either unvegetated or supports only floating or submersed macrophytes, or b) permanently inundated areas ≤6.6 ft in depth that do not support rooted-emergent or woody plant species. Areas ≤6.6 ft mean annual depth that support only submergent aquatic plants are vegetated shallows, not wetlands. Vegetated shallows and/or deep-water habitats over 0.1 acre in size will be mapped in each monitoring report/delineation.

Table 1 Credit Generation

The program sponsor anticipates the ILF Site will generate between 17.0 and 23.798 credits based on the following ratios and acreages for each mitigation activity.

Mitigation Activity	Acres	Ratio (Acres: Credits)	Credits Generated
PEM Re-establishment	0.45	1:1	0.450
PEM Enhancement	0.43	4:1	0.108
PEM Rehabilitation	1.85	4:1	0.463
PEM Preservation	0.15	20:1	0.008
PSS Reestablishment	2.94	1:1	2.940
PSS Rehabilitation	2.91	4:1	0.728
PFO Enhancement	18.52	3:1	6.173
PFO Reestablishment	7.8	1:1	7.800
PFO Rehabilitation	1.3	3:1	0.433
PFO Preservation	30.88	15:1	2.059
PFO Mosaic Enhancement 70%	4.23	4:1	1.058
PFO Reestablishment Mosaic 30%	1.81	1:1	1.810
Upland Buffer Rehabilitation	0.38	8:1	0.048
Upland Buffer Preservation	1.59	20:1	0.080
Wetland impact	0.36		-0.360
Total	75.6		**23.798**

In order for the performance standard to be met, re-established wetlands must have a VIBI-FQ of 40. Whereas rehabilitated wetlands must have a VIBI-FQ of 40 or a 10-point increase from the baseline, whichever is higher. Four baseline plots located in the proposed wetland rehabilitation and enhancement areas had VIBI-FQ scores ranging from 20.89-30.41. We anticipate an ecological lift will be achieved with the restoration of hydrology, implementation of invasive species control, and the planting plan in accordance with Ohio Wetland Mitigation Guidelines specifications. Seed mixes with a FQAI score >50 will be used in all wetland areas.

We propose a 1:1 credit ratio for re-established wetlands, 3:1 for the rehabilitated forested wetlands, 4:1 for the rehabilitated scrub wetlands, and 4:1 for the rehabilitated emergent wetlands. The 3:1 ratio requested for rehabilitated forested wetlands reflects underlying costs required to reestablish tree cover. Existing PEM wetlands have been degraded through past disturbances including tilling, sedimentation, and the introduction of invasive species. The project sponsor anticipates efforts to rehabilitate PEM and PSS plant communities will be more similar to costs to reestablish wetlands, hence the request for a 4:1 ratio.

Much of the area was in agricultural production prior to the 1990's. Residential development in the area began to increase in the 1960's, with most of the remaining farmland being abandoned by the early 2000's. This Site had previously been cleared and drained for crop production through the 1970's. The

property was then left fallow but has been kept open through periodic mowing. Many such properties in the Town of Porter have already been developed for residential housing. Furthermore, recent years have seen a reduction in regulatory authority over wetlands (SWANCC, Rapanos), and recent studies suggest that further relaxation of the clean water act may lead to further wetland losses (Raney and Leopold 2018). There is 30.07 acres of existing forested wetlands at the Site, much of which is concentrated on the east side. Two baseline plots located within these forested wetlands had VIBI-FQ scores of 39.60 and 52.99. These wetlands are a remnant of the original forested wetland community and contribute to important, watershed scale functions; flood-storage value, carbon sequestration, habitat for wildlife (including species of greatest conservation need), and a role in denitrification. Additionally, these forested areas along the Niagara River help to protect the water quality of the river and nearby Lake Ontario. Due to the quality and the important functions of these forested wetlands, we propose a credit production ratio of 15:1 to preserve existing wetlands at the Site.

Preservation of the existing forested upland buffer will also maintain habitat continuity and a diverse array of cover-types to increase wildlife usage. Wetlands and streams without intact upland buffers typically have lower plant diversity, more invasives, higher nutrients, sediment inputs, and temperatures. Given the importance of buffers to adjacent wetlands and the quality of the habitat, a ratio of 20:1 for upland buffer preservation is recommended.

A small portion of the fallow field is slightly higher and contains sandier soils than the remainder of the Site. It is currently dominated by Canada goldenrod (*Solidago canadensis*) and has limited plant diversity. This area will be planted to an upland forest community, which will include a significant percentage of mast bearing species. This will improve the vegetation community and provide year-round, high quality cover for wildlife. An 8:1 credit-ratio is proposed for upland buffer rehabilitation.

Provided that preservation is documented, and financial assurances are in place (conservation easement has been recorded) the credit release schedule will include:

- All of the credits associated with the preservation will be released upon approval of this Instrument Amendment, recordation of the conservation easement, and execution of financial assurances.
- 10% of the credits for re-establishment, rehabilitation, and enhancement will be released upon approval of the Instrument Amendment.
- 20% of the credits for re-establishment, rehabilitation, and enhancement will be released at completion of planting and approval of the as-built drawing by the IRT.
- 15% of the credits for re-establishment, rehabilitation, and enhancement will be released after meeting all of the components of the first interim goal.
- 15% of the credits for re-establishment, rehabilitation, and enhancement will be released after meeting all of the components of the second interim goal.
- 15% of the credits for re-establishment, rehabilitation, and enhancement will be released after meeting all of the components of the third interim goal.
- 25% of the credits for re-establishment, rehabilitation, and enhancement will be released after the final performance standards have been met for the 10-year monitoring period, provided a USACE approved long-term management plan has been executed and funded and the conservation easement endowment has been funded, and all other obligations and performance standards set forth in the Instrument Amendment and permit have been met.

5. Baseline Ecological Characteristics

5.1 Historic and Existing Plant Communities, Including Wetlands

The Site has a history of use as agricultural land dating back to at least the 1950's (Figure 4). Vegetation communities were surveyed between May and September of 2020, and are further described in the wetland delineation report in Appendix A. Here we provide a brief summary of the plant communities and provide photographs of current site conditions. The emergent wetlands within the fallow fields are dominated by rough bentgrass (*Agrostis scabra*), meadow foxtail (*Alopecurus pratensis*), fox sedge (*Carex vulpinoidea*), gray dogwood (*Cornus racemosa*), common goldentop (*Euthamia graminifolia*), green ash (*Fraxinus pennsylvanica*), soft rush (*Juncus effusus*), sensitive fern (*Onoclea sensibilis*), crooked-stemmed aster (*Symphyotrichum prenanthoides*), and riverbank grape (*Vitis riparia*). Wetlands C, E, and G also contain small stands of common reed (*Phragmites australis*). Upland areas within the fields are dominated by rough bentgrass (*Agrostis scabra*), spotted knapweed (*Centaurea stoebe*), Kentucky blue grass (*Poa pratensis*), Canada goldenrod (*Solidago canadensis*), and riverbank grape (*Vitis riparia*). The forested wetlands are dominated by eastern cottonwood (*Populus deltoides*), pin oak (*Quercus palustris*), black willow (*Salix nigra*), and American elm (*Ulmus americana*), with meadow foxtail (*Alopecurus pratensis*), gray dogwood (*Cornus racemosa*), teal lovegrass (*Eragrostis hypnoides*), green ash (*Fraxinus pennsylvanica*), and reed canary grass (*Phalaris arundinacea*) in the understory.

River Road Photos

A June 12, 2019 visit occurred in a relatively dry period. This area held standing water earlier in spring and was being utilized by mallards.

Previous owner has been brush-hogging the property. June 2019.

Pockets too wet to brush-hog existed throughout the site.

A network of ditches conveying water appear to be prime targets to convey hydrology to constructed wetland basins. Photographed on April 3, 2019.

Eastern areas of the property supported facultative plant species, and areas that appeared suitable for basin excavation. Pictured January 2020.

Areas suitable for restoration activities, pictured January 2020.

Cultural Resources

A request for a cultural and historic resources review was submitted to the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) and a response was received. According to their recommendation, a Phase I archaeological survey was completed during the summer of 2020 to determine the likelihood of the presence of cultural resources at the Mitigation Site. According to OPRHP, based upon the findings of the Phase 1 survey, no cultural resources will be affected by the wetland mitigation activities (Appendix C).

5.2 Site Land Use History, Including Structures

There are no structures on the property. From a review of aerial photography dating back to 1958, fields within the Site were continuously maintained for agricultural production through the 1970's. 1958-2018 aerial photos are shown in Figure 4. The property was mowed in 2019. On-site reviews in April and June 2018, July 2019, January 2020, and May through September 2020 provided evidence of previous hydrological modifications, including ditching. The Site appears to have historically supported more extensive wetlands prior to drainage and tillage activities. There are no known hazardous material sites located on or within the vicinity of the Site.

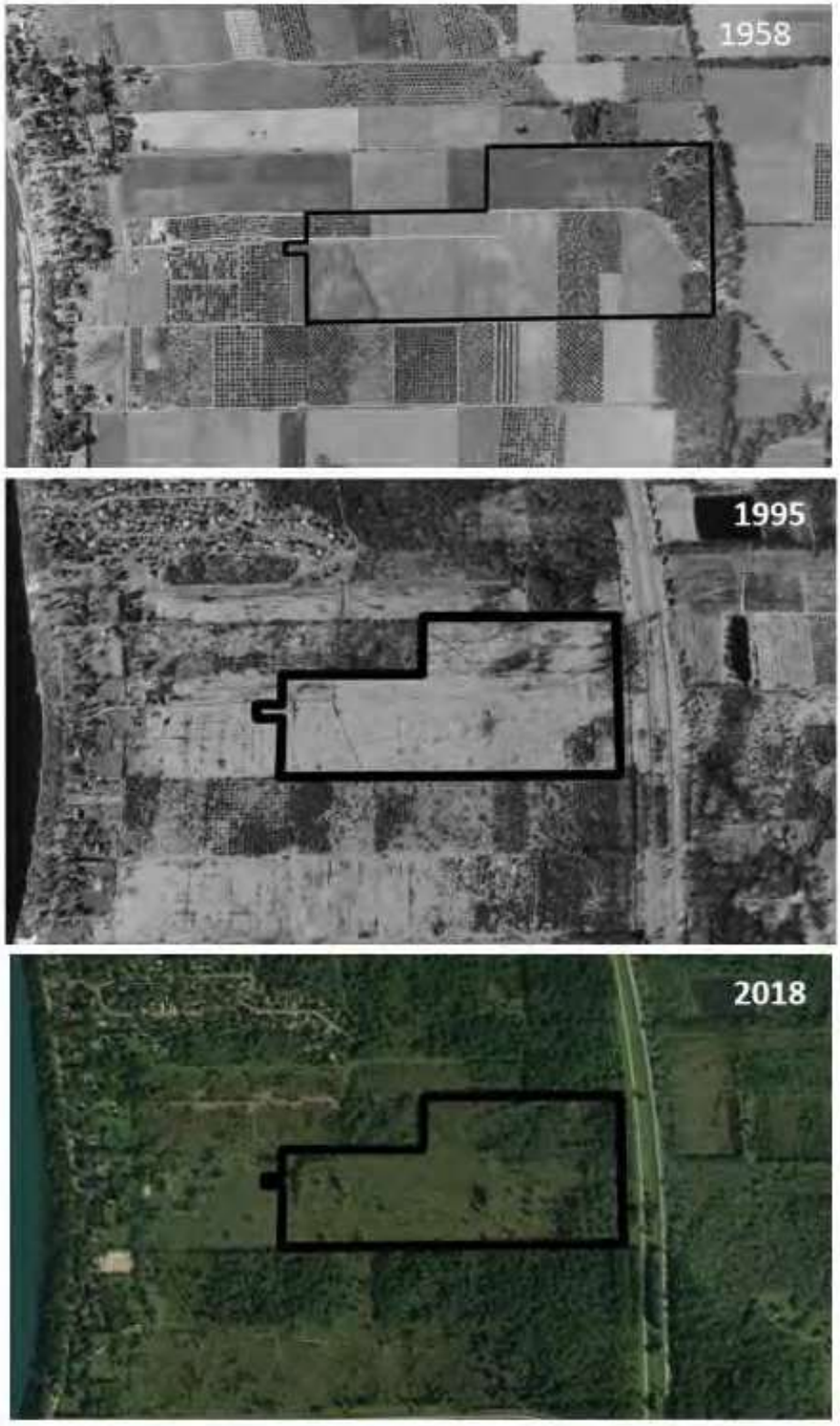


Figure 4 Historical Aerial Photos from River Road.
The property was in agricultural use until the late 1900's. Recent management has included periodic mowing of much of the previous agricultural lands.

5.3 Soil Descriptions

Based on the Soil Survey of Niagara County, New York (USDA Official Soil Series Descriptions) the soil series mapped on-site include Claverack loamy fine sand, Madalin silt loam, Phelps gravelly loam, and Rhinebeck silt loam.

Claverack series consists of deep, moderately well drained to well drained soils that developed in sandy lacustrine deposits. Claverack loamy fine sand, 0 – 2% slopes (CmA) is classified as non-hydric with moderately low to moderately high saturated hydraulic conductivity.

Madalin series consists of deep, poorly drained to very poorly drained soils that have a medium-textured surface layer and a moderately fine textured to fine textured subsoil. These soils developed in calcareous, lake-deposited clay and silt. Madalin silt loam, 0 – 3% slopes (Ma) is classified as hydric with very low to moderately high saturated hydraulic conductivity.

Phelps series consists of deep, moderately well drained, medium-textured, gravelly soils. These soils formed in neutral to mildly alkaline glacial outwash and glacial beach deposits of sand and gravel. Phelps gravelly loam, 0 - 5% slopes (PsA) is classified as non-hydric with moderately high to high saturated hydraulic conductivity.

Rhinebeck series consists of deep, somewhat poorly drained, moderately fine textured and medium-textured soils. These soils formed in calcareous lacustrine deposits of silt and clay. Rhinebeck silt loam, 0 – 2% slopes (RbA) is classified as non-hydric with moderately low to moderately high saturated hydraulic conductivity.

A soils map is provided in Figure 5. Soil conditions in the field appear to conform to the mapped soil series. Additionally, soil borings were taken throughout areas potentially suitable for restoration work. Descriptions of soil borings are provided in the work plans for the Site in Appendix B. According to the soil survey, both Madalin and Rhinebeck map units are suitable for shallow excavated impoundments.

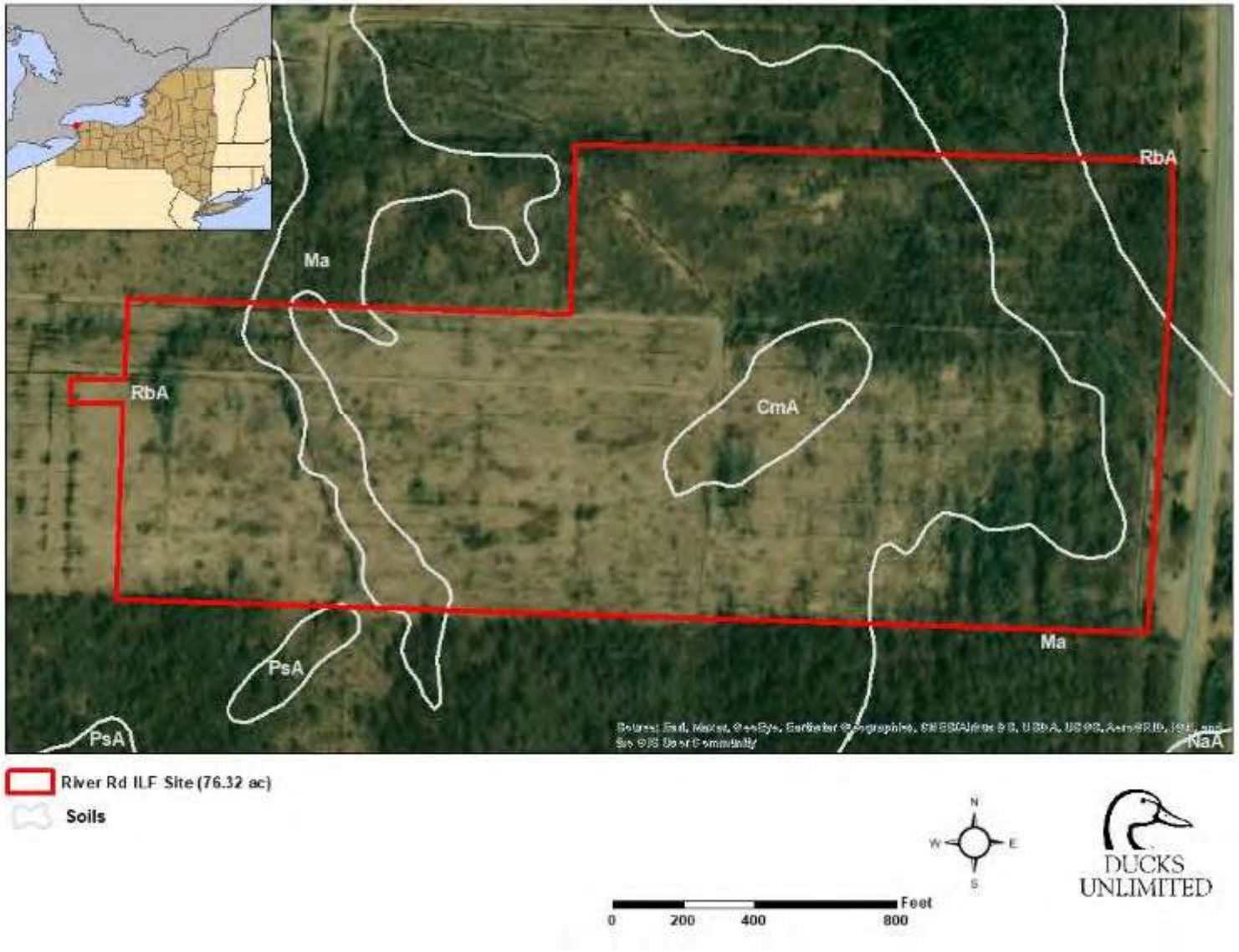


Figure 5 Soils Map.
Restoration, rehabilitation, and enhancement activities will occur in RbA, Ma, and CmA.

5.4 Animal and Plant Species Including Endangered Species

No federally threatened, endangered, or candidate species are known to occur within the Site's boundary (Appendix D). Additionally, there are no known occurrences of state-listed species at the Site, although the threatened lake sturgeon is known to exist in the nearby Niagara River.

Species of greatest conservation need (SGCN) have been documented in the vicinity of the Site during past surveys, including black-crowned night-heron, American kestrel, American woodcock, black-billed cuckoo, red-headed woodpecker, wood thrush, brown thrasher, blue-winged warbler, scarlet tanager, eastern meadowlark, and bobolink (NYSDEC, 2015; McGowan and Corwin 2008). A full list of species observed at the property is provided in Table 2.

Table 2 Wildlife and Plant Species Identified

Species	Common Name	Conservation Status	Notes
	Birds		
Agelaius phoeniceus	red-winged blackbird		
Anas platyrhyncos	mallard		
Buteo jamaicensis	red-tailed hawk		
Bombycilla cedrorum	cedar waxwing		
Cardinalis cardinalis	northern cardinal		
Cathartes aura	turkey vulture		
Colaptes auratus	northern flicker		
Corvus brachyrhyncos	American crow		
Cyanocitta cristata	blue jay		
Dumetella carolinensis	gray catbird		
Gallinago delicata	Wilson's snipe		
Hirundo rustica	barn swallow		
Meleagris gallopavo	wild turkey		
Phasianus colchicus	ring-necked pheasant		
Pipilo erythrophthalmus	eastern towhee		
Poecile atricapillus	black-capped chickadee		
Setophaga petechia	American yellow warbler		
Sialia sialis	eastern bluebird		
Spinus tristis	American goldfinch		
Turdus migratorius	American robin		
Tyrannus tyrannus	eastern kingbird		
Vireo olivaceus	red-eyed vireo		
Zenaida macroura	mourning dove		
	Amphibians		

Species	Common Name	Conservation Status	Notes
Lithobates clamitans	green frog		
Lithobates pipiens	northern leopard frog		
Pseudacris crucifer	spring peeper		
	Reptiles		
Thamnophis sirtalis	common garter snake		
	Mammals		
Canis latrans	coyote		
Odocoileus virginianus	white-tailed deer		
Procyon lotor	raccoon		
Sciurus carolinensis	eastern gray squirrel		
Vulpes vulpes	red fox		
	Plants		
Acer rubrum	red maple		
Achillea filipendulina	fern-leaved yarrow		
Agrostis scabra	rough bentgrass		
Alopecurus pratensis	meadow foxtail		
Anemone canadensis	wood anemone		
Apocynum cannabinum	Indian hemp		
Asclepias incarnata	swamp milkweed		
Asclepias syriaca	common milkweed		
Asparagus officinalis	asparagus		
Betula populifolia	gray birch		
Bidens cernua	nodding burr-marigold		
Bidens frondosa	devil's beggartick		
Bromus inermis	smooth brome		
Carex gynandra	nodding sedge		
Carex scoparia	broom sedge		
Carex spicata	spiked sedge		
Carex vulpinoidea	fox sedge		
Carya ovata	shagbark hickory		
Centaurea stoebe	spotted knapweed		
Cirsium arvense	Canada thistle		
Cornus amomum	silky dogwood		
Cornus racemosa	gray dogwood		
Cornus sericea	red-osier dogwood		
Crataegus crus-galli	cockspur hawthorn		
Daucus carota	wild carrot		
Echinochloa muricata	rough barnyardgrass		

Species	Common Name	Conservation Status	Notes
Echinochloa walteri	coast cockspur grass		
Elaeagnus umbellata	autumn olive		
Epilobium ciliatum	fringed willowherb		
Equisetum arvense	field horsetail		
Eragrostis hypnoides	teal lovegrass		
Euthamia graminifolia	common goldentop		
Festuca rubra	red fescue		
Fragaria vesca	woodland strawberry		
Fraxinus nigra	black ash		
Fraxinus pennsylvanica	green ash		
Galium aparine	cleavers		
Geum urbanum	town avens		
Geum vernum	spring avens		
Glyceria striata	fowl mannagrass		
Juglans nigra	black walnut		
Juncus articulatus	jointleaf rush		
Juncus effusus	soft rush		
Juncus tenuis	poverty rush		
Leucanthemum vulgare	oxeye daisy		
Lolium perenne	perennial ryegrass		
Lonicera tatarica	Tartarian honeysuckle		
Lycopus americanus	American water horehound		
Lythrum salicaria	purple loosestrife		
Maianthemum racemosum	false Solomon's seal		
Oenothera perennis	little evening primrose		
Onoclea sensibilis	sensitive fern		
Parthenocissus quinquefolia	Virginia creeper		
Persicaria hydropiperoides	mild water pepper		
Phalaris arundinacea	reed canary grass	invasive	
Phleum pratense	common timothy		
Phragmites australis	common reed	invasive	Has been periodically mowed.
Plantago lanceolata	English plantain		
Poa pratensis	Kentucky blue grass		
Populus deltoides	eastern cottonwood		
Potentilla simplex	common cinquefoil		
Prunella vulgaris	selfheal		
Pycnanthemum tenuifolium	narrow-leaved mountain mint		
Quercus bicolor	swamp white oak		

Species	Common Name	Conservation Status	Notes
Quercus palustris	pin oak		
Quercus rubra	northern red oak		
Rhamnus cathartica	European buckthorn		
Rosa multiflora	multiflora rose		
Rumex crispus	curly dock		
Salix bebbiana	Bebb's willow		
Salix nigra	black willow		
Scirpus atrovirens	green bulrush		
Scirpus cyperinus	woolgrass		
Sisyrinchium montanum	blue eyed grass		
Solanum dulcamara	bitter-sweet nightshade		
Solidago canadensis	Canada goldenrod		
Solidago rugosa	wrinkleleaf goldenrod		
Symphyotrichum novae-angliae	New England aster		
Symphyotrichum prenanthoides	crookedstem aster		
Symphyotrichum puniceum	purplestem aster		
Taraxacum officinale	common dandelion		
Thelypteris palustris	marsh fern		
Tilia americana	American basswood		
Toxicodendron radicans	poison ivy		
Trifolium pratense	red clover		
Ulmus americana	American elm		
Verbascum thapsus	great mullein		
Verbena hastata	blue vervain		
Vernica officionalis	common speedwell		
Vicia sativa	garden vetch		
Viola canadensis	Canada violet		
Vitis riparia	riverbank grape		

6. Mitigation Work Plan

6.1 Geographic Boundaries

The geographic boundaries of the Site correspond to the 76.32-acre area to be placed under a conservation easement (red-line) as depicted in Figure 2, and in Appendix E. The Site lies to the west of the Niagara Scenic Parkway in Porter. The site is accessed on the west side by an access easement from River Road (Figure 3). Private lands, much of which are forested, border the Site to the north and south.

6.2 Sources of Water, Connections to Existing Waters and Upland Runoff

Shallow drainage ditches and gradually sloping terrain direct water onto and across the Site from south to north. An existing access road running west to east across the Site appears to direct much of the surface flow from the fallow field into ditches that flow west offsite, towards the Niagara River. Existing wetland features have been identified through an on-site delineation; this report can be found in Appendix A. Two groundwater monitoring wells were installed at the Site in May of 2020. The well locations are shown in Appendix B and data from the wells are shown in Figure 6. The data from wells MW1 and MW2 indicate that ground water levels quickly dropped to >2 feet below the ground surface in late May of 2020. The groundwater levels did not return to within 12 inches of the surface until late winter of 2021. It is important to note that abnormally dry to moderate drought conditions persisted at the Site from July 2020 until May 2021 (NOAA 2021). Both of these wells were installed in areas that were delineated as wetland or wetland/upland mosaic during the summer of 2020, with the primary hydrology indicator being oxidized rhizospheres on living roots. It is expected that wetland hydrology will return to the Site when wetter conditions return. The site characteristics and data collected support the plan to utilize a combination of culvert removal, grading, and embankments to increase wetland hydrology on the Site.

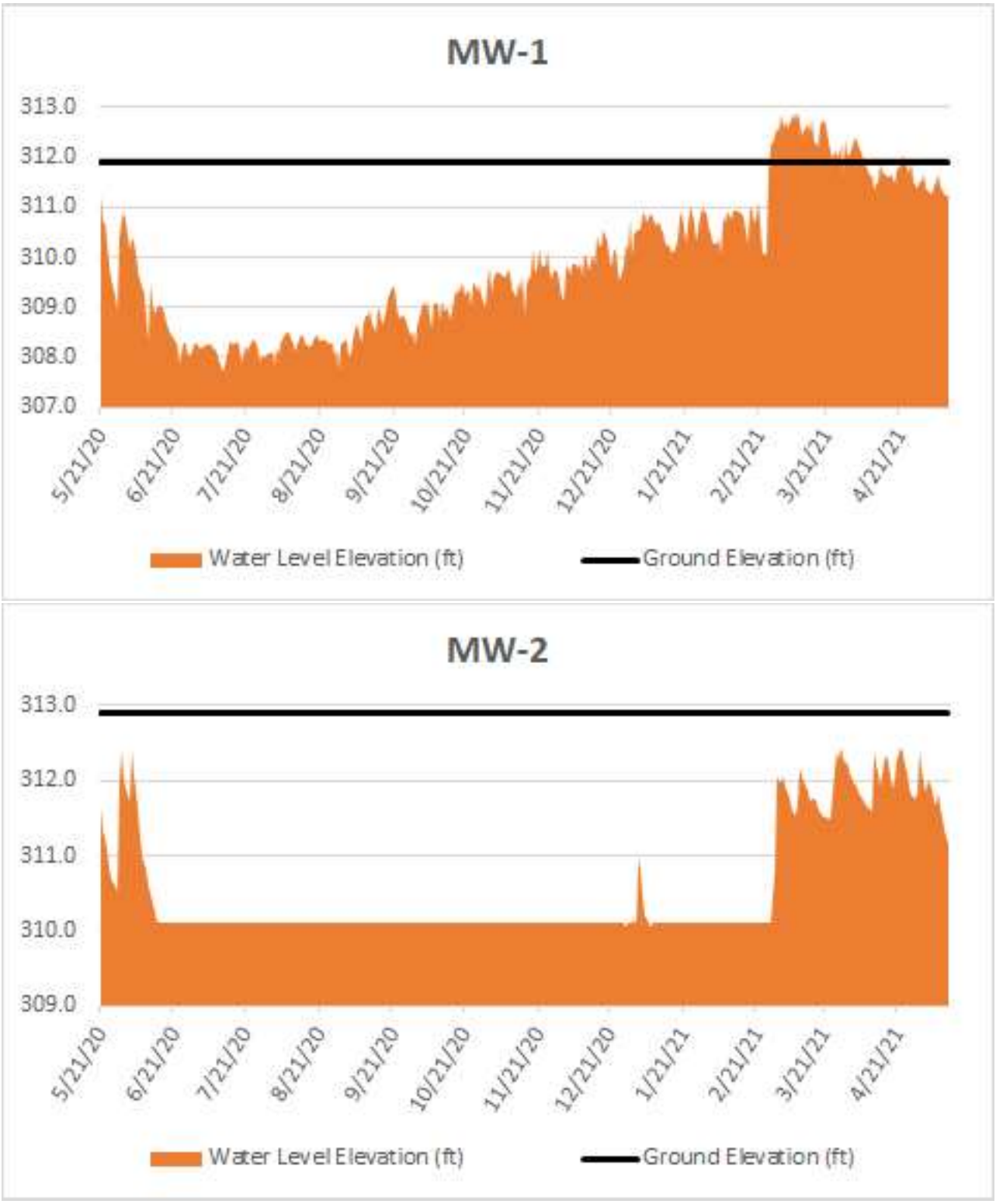


Figure 6 Ground Water Data.
Groundwater data is shown for the period of May 2020 until May 2021. Abnormally dry to moderate drought conditions persisted at the Site from July 2020 until May 2021 (NOAA 2021).

6.3 Invasive Species

Upon acquisition, the Site had invasive plant species present that is typical in much of the Niagara River Service Area, summarized below. Active management will be required to achieve performance standards for invasive plant and native plant diversity goals. Five small, yet dense stands of *Phragmites australis* (0.04 acre – 0.15 acre each) have been located in wetlands W-C, W-E, and W-G (Figure 7). Lesser amounts of reed canary grass (*Phalaris arundinacea*) and purple loosestrife (*Lythrum salicaria*) were noted in vegetation plots within the proposed work area, the relative cover of these two species within the plots did not exceed 4.2% and 2.2% respectfully. In conjunction with construction activities, invasive species will be mowed ahead of a broad-cast herbicide application. A broad-spectrum, aquatic-safe herbicide will be applied by a certified pesticide applicator in accordance with all state and federal regulations. No areas of permanent standing water are present within the treatment areas. More detail on the invasive plant control sequence to be initiated during construction activities is provided in Section 6.6.

DU will continue to monitor and adaptively manage all invasive species on the Site through hand pulling, mechanical removal, and through application of herbicide in accordance with all state and federal regulations. DU staff regularly visits mitigation projects once constructed to identify any ongoing management concerns. As the site is developed spot herbicide applications may be necessary. Other appropriate methods for control will be determined at the time the species are encountered. Long-term tasks will include routine inspections in early summer (late June through mid-July) to determine invasive species presence or absence, and abundance. Species found will be rapidly controlled through hand digging or the application of herbicides before seeds reach maturity. The performance standards to be met for invasive species are listed in Section 8.

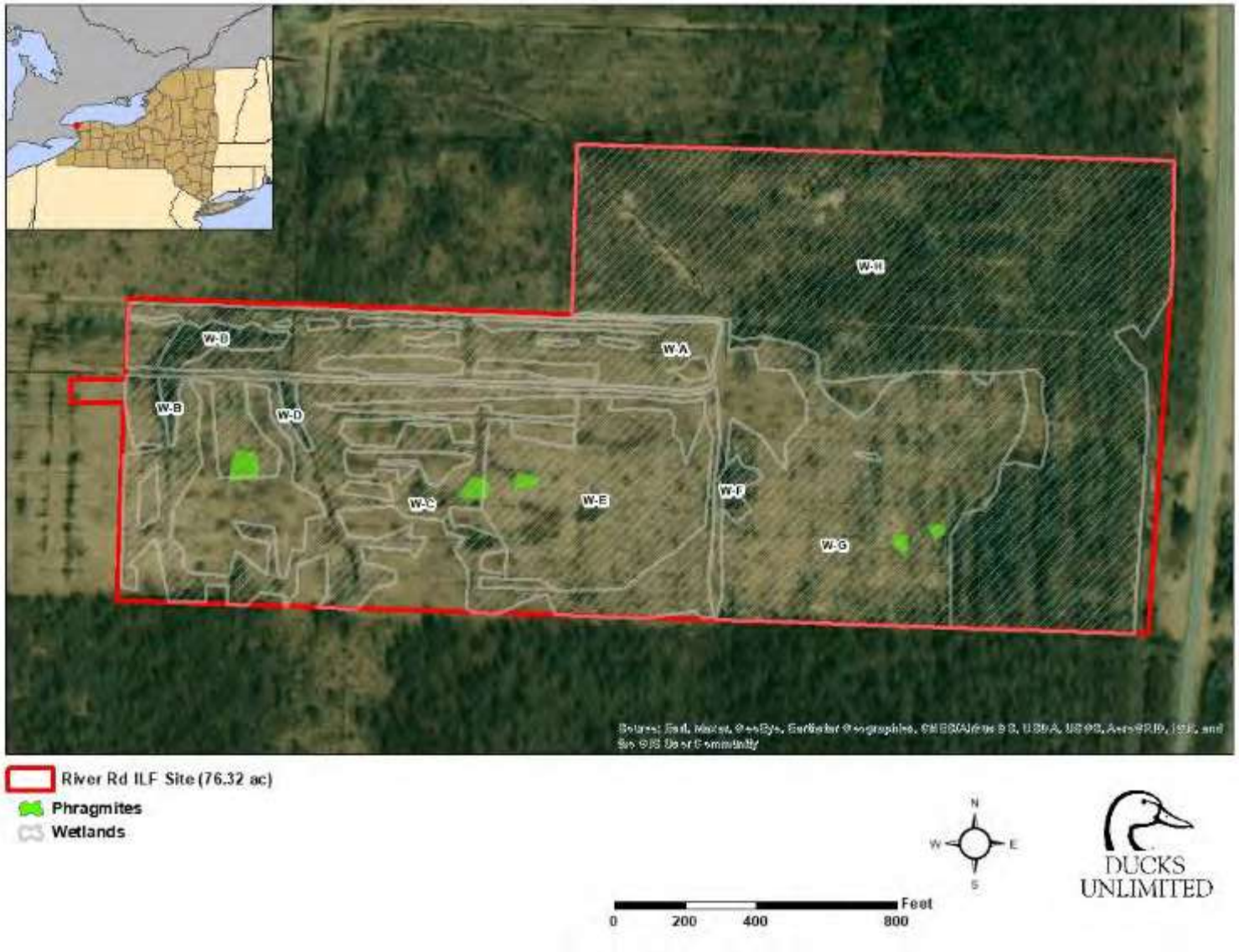


Figure 7 Invasive Species Map.
Invasive plant species will be targeted in construction and through adaptive management activities.

Invasive Plant Photos

Stands of Phragmites at the eastern end of the fallow field.

6.4 Construction Methods, Timing and Sequencing

Construction of the project will occur as soon as practicable after approval of this mitigation plan. Final earthwork adjustments and site planting will occur no later than June 30 of the year following construction, or by an approved extension date. The hydrological restoration plan provided in Appendix B includes shallow scrapes, culvert removal, and the construction of a low, flow-over embankment. Much of the flow-over embankment is planned for a constructed height of $\leq$ 0.7 foot above the existing-grade, with a maximum height of 2.1 feet where an existing culvert is to be removed. It will function similarly to a ditch-plug by impeding surface runoff. Placement of a proposed scrape/borrow area for embankment construction has been sited to maximize wetland reestablishment from the borrow area. Soil borings at the Site found silty clay suitable for low embankment construction.

Prior to any grading or placement of fill, topsoil will be stripped and stockpiled from the work area. Culvert removal, scrapes, and the low embankment will be completed on the site using a bulldozer and tracked excavator. Once the cut and fill work is completed, the stockpiled topsoil will be spread across all disturbed areas. The low embankment will inundate approximately 6.75 acres to a maximum depth of 1.5 feet, with much of the inundated area being less than 1 foot deep. Hydrology will be restored to additional acreage through the influence of this work upon the ground water.

Much of the Site had borderline, nearly hydric soil conditions, it is anticipated that much of the Site will revert to wetlands with the planned earthwork and the cessation of regular maintenance activities (e.g., ditch maintenance, mowing, vegetation disturbance). Planned wetland areas shown in Appendix B will be roughly disked to reintroduce microtopography, and to prepare areas of likely reversion for seeding of wetland plant species. Soils will be left loose to facilitate wetland plant establishment.

Seeding will begin as soon as the earthwork is completed. All reestablished and rehabilitated wetland areas will receive the wetland seed mix. Any disturbed upland areas will be stabilized with the standard upland seed mix, including all low embankments and access roads. The PSS, PFO, and upland buffer areas specified in the planting plan (Appendix B) will be planted to the species mixes specified in Table 3. Herbaceous wetland species will be seeded immediately following construction, however woody plantings may be delayed as necessary in order to establish plants during an optimum time of year, which is typically in the fall or early spring. Woody planting will occur no later than June 30 of the year following construction, or by an approved extension date.

6.5 Grading Plan, Including Elevations and Slopes of Substrate

The grading operations with finished elevations are shown in the plan and profile pages of Appendix B. These include culvert removal, scrapes, and low embankment construction in order to collect and retain groundwater and surface runoff. Slopes shall not exceed 4:1 on the low embankment. Final grading shall leave the topsoil in a loose condition conducive to broadcast seeding. The erosion and sediment control plan in Appendix B outlines the stormwater best management practices that will be used.

6.6 Methods for Establishing Desired Plant Community

Establishing the desired plant community will be achieved by active means. During the wetland delineation, some hydrophytic vegetation was observed in the fallow fields, thus providing evidence of a hydrophytic seed bank that may reestablish following hydrological restoration. All reestablished and rehabilitated wetland areas will be broadcast with a wetland seed mix containing species with variable shade tolerance (Table 3). Species selection was formulated following a review of "Ecological Communities of New York State" (Edinger et al., 2014). The planting plan in Appendix B reflects a goal to reestablish multiple wetland cover types (i.e., PEM, PSS, PFO. The low embankment will be planted to a cool season grass and legume mix in order to prevent erosion.

Following initial construction, planting, and seeding activities, additional follow up spraying efforts will target areas dominated by invasive species. All herbicide applications will be conducted by a licensed pesticide applicator in accordance with state and federal guidelines. As the site develops, regular site visits during the growing season will be necessary to assure the re-establishment, rehabilitation, and enhancement zones remain free of all undesirable, invasive plant species. DU will continue to monitor and adaptively manage all invasive species on the property through hand pulling (non-hogweed species), mechanical removal, and through herbicide application in order to facilitate the shift back to a native plant community. Annual spot herbicide applications may be necessary, based on past experience, it is expected that it will take 4-7 growing seasons to fully control Phragmites. The sponsor anticipates control of reed canary grass through active means (e.g., mechanical removal, spraying, enhancement of hydrology) in addition to planting the Site to trees will over time shade the area providing conditions unsuitable for reestablishment of reed canary grass. Monitoring tasks include routine inspections in late spring and early summer to determine invasive species presence, and abundance. Any invasive species found will be rapidly controlled before seeds reach maturity.

Table 3 Planting List

Target Area	Common Name	Scientific Name	Wetland Indicator Status	Propagule Type	Quantity/Acre
All Wetland Areas	nodding beggartick	*Bidens cernua*	OBL	seed mix	*20 lbs seed mixture/acre in PEM areas*
	bristly sedge	*Carex comosa*	OBL		
	fringed sedge	*Carex crinita*	OBL		
	hop sedge	*Carex lupulina*	OBL		
	shallow sedge	*Carex lurida*	OBL		
	fox sedge	*Carex vulpinoidea*	OBL		
	spotted Joe pye weed	*Eutrochium maculatum*	OBL		
	soft rush	*Juncus effusus*	OBL		*15 lbs seed mixture/acre in PSS and PFO areas*
	rice cutgrass	*Leersia oryzoides*	OBL		
	swamp smartweed	*Persicaria hydropiperoides*	OBL		
	green bulrush	*Scirpus atrovirens*	OBL		
	woolgrass	*Scirpus cyperinus*	OBL		
PSS	buttonbush	*Cephalanthus occidentalis*	OBL	bare root/potted	*sum to ≥500 stems/acre*
	silky dogwood	*Cornus amomum*	FACW		
	red-osier dogwood	*Cornus sericea*	FACW		
	black willow	*Salix nigra*	OBL		
PFO	red maple	*Acer rubrum*	FAC	bare root/potted	*sum to ≥500 stems/acre*
	silver maple	*Acer saccharinum*	FACW		
	silky dogwood	*Cornus amomum*	FACW		
	red-osier dogwood	*Cornus sericea*	FACW		
	American sycamore	*Platanus occidentalis*	FACW		
	swamp white oak	*Quercus bicolor*	FACW		
	pin oak	*Quercus palustris*	FACW		
	black willow	*Salix nigra*	OBL		
Upland Buffer	red maple	*Acer rubrum*	FAC	bare root/potted	*sum to ≥500 stems/acre*
	bitternut hickory	*Carya cordiformis*	FAC		
	burr oak	*Quercus macrocarpa*	FACU		
	pin oak	*Quercus palustris*	FACW		
	American basswood	*Tilia americana*	FACU		
Embankment	redtop	*Agrostis gigantea*	FACW	seed mix	*45 lbs seed mixture/acre*
	creeping red fescue	*Festuca rubra*	FACU		
	annual ryegrass	*Lolium multiflorum*	FACU		
	perennial ryegrass	*Lolium perenne*	FACU		
	birdsfoot trefoil	*Lotus corniculatus*	FACU		

**Exact species composition subject to commercial availability*.

6.7 Soil Management and Erosion Control Measures

All slopes, soils, substrates, and constructed features within and adjacent to the work site will follow stabilization protocols described in the River Road Erosion and Sediment Control Plan, that will be prepared and provided to the contractor prior to initiation of those activities. DU will obtain all necessary permits (e.g., SWPPP) prior to construction.

7. Maintenance Plan

DU will take appropriate measures after initial construction to ensure continued site maturation. DU will be responsible for monitoring and coordinating the execution of maintenance activities. Monitoring will occur regularly throughout the growing season from approximately May through September of each year. Regular inspections include but are not limited to inspection of site hydrology, plant community development including diversity, percent cover and presence of invasive species, and functioning of low embankments. Maintenance activities may be triggered by:

- During yearly monitoring (Section 9), management concerns (e.g., deer herbivory, unauthorized all-terrain vehicle (ATV) use, dumping) and appropriate adaptive management strategies will be reviewed and implemented as necessary. These include but are not limited to: erection of fencing, placement of barriers to prohibit unauthorized ATV use, contacting local authorities. Plant community management may take on the form of mechanical removal, mowing, and herbicide application to control invasive plant species.
- Unforeseen environmental conditions may affect the success of the project, but their effects can generally be managed through early detection. Flooding, drought, invasive species, site degradation, erosion, and vandalism are examples of some adverse conditions that can be managed.
- Routine maintenance checks, for example, on plant health and vigor, unwanted plant species, trash, herbivores, and areas with chronic erosion.
- Deer herbivory will be monitored. Supplemental plantings, fencing, etc. may be required as adaptive management techniques.
- Supplemental plantings may be added, especially to overcome adverse weather conditions early within site establishment phases.
- Corrective measures may include adding or removing plants as conditions warrant, modifying local topography to ensure wetland hydrology, and additional mulching and seeding as needed.
- Routine checks of low embankments to look for erosion and to make sure that the outlets are clear of debris. Any eroded areas will be repaired and reseeded.
- Routine checks of signs and associated maintenance will be performed.
- Estimated costs for annual monitoring and reporting are provided in Appendix F.

8. Performance Standards

Success within the planned wetland re-establishment, enhancement and rehabilitation portions of the Site is based on meeting the USACE criteria for the three parameters described in the 1987 Corps of Engineers Wetland Delineation Manual and Northcentral Northeast Regional Supplement. These parameters require sufficient:

1. *wetland hydrology* to support adequate
2. *hydrophytic vegetation*, ultimately forming
3. *hydric soils*, all of which describe a functioning wetland.

The performance standards criteria described below will be monitored over a ten-year term that begins following the submittal of a post-construction as-built; the monitoring term includes three interim goals, and the final success criteria. When met, each interim goal would release 15% of the total remaining credits (i.e., credits remaining following mitigation plan and as-built approval). The final 25% of remaining credits would be released after the final vegetative goals have been met, a USACE approved long-term management plan and conservation easement have been executed and funded, and all other obligations and performance standards set forth in the instrument amendment and permit have been met. If areas of the Site are not meeting full performance criteria at the end of the 10-year monitoring period, the project sponsor may request that the areas be evaluated for partial credit release at a lower credit ratio, a modification to the instrument amendment may be requested, and/or additional corrective action/monitoring may be required. It is important to note that the first two options will only be considered in the event that all efforts to meet standards and obligations have been exhausted (including corrective action).

8.1 First Interim Goal Releases 15% of Credits When:

- The areas meeting wetland criteria will have 50% relative coverage by native perennial hydrophytes.
- The areas meeting wetland criteria are demonstrating progress in vegetative development towards meeting the final VIBI-FQ performance standard and have a minimum VIBI-FQ of 20.
- The areas meeting PSS criteria will have at least 150 shrubs/trees per acre, and those stems will display normal and healthy growth, free of disease and pests. PSS zones will have at least half of the stems growing as shrub species.
- The upland buffer rehabilitation and those areas meeting PFO criteria will have at least 150 shrubs/trees per acre, and those stems will display normal and healthy growth, free of disease and pests. Upland buffer and PFO zones will have at least half of the stems growing as tree species.
- Wetland acreage will have less than 10% relative cover of all non-Typha invasive plant species such as, but not limited to: purple loosestrife (*Lythrum salicaria*), common reed (*Phragmites australis*), Japanese Knotweed (*Polygonum cuspidatum*), reed canary grass (*Phalaris arundinacea*).
- Due to the difficulty of distinguishing the three species of cattails (*Typha latifolia*, *Typha angustifolia*, and *Typha* x *glauca*), as well as the likelihood that at least one of these will be present in many types of New York wetlands, the total relative cover of all invasive species, including *Typha* spp., will be less than 15%.

- Upland buffer rehabilitation areas will have no more than 25% relative cover composed of invasive species such as: buckthorn (*Rhamnus cathartica*), honeysuckle (*Lonicera* spp.), reed canary grass (*Phalaris arundinacea*).
- Upland buffer rehabilitation areas will have at least 60% relative cover of native perennials.
- Upland buffer rehabilitation areas are demonstrating progress in vegetative development towards meeting the final VIBI-FQ performance standard and have a minimum VIBI-FQ of 20.

8.2 Second Interim Goal Releases 15% of Credits When:

- The areas meeting wetland criteria will have 60% relative coverage by native perennial hydrophytes.
- The areas meeting wetland criteria are demonstrating progress in vegetative development towards meeting the final VIBI-FQ performance standard and have a minimum VIBI-FQ of 32.
- The areas meeting PSS criteria will have at least 250 shrubs/trees per acre, and those stems will display normal and healthy growth, free of disease and pests. PSS zones will have at least half of the stems growing as shrub species.
- The upland buffer rehabilitation and those areas meeting PFO criteria will have at least 250 shrubs/trees per acre, and those stems will display normal and healthy growth, free of disease and pests. Upland buffer and PFO zones will have at least half of the stems growing as tree species.
- Wetland acreage will have less than 8.5% relative cover of all non-*Typha* invasive plant species such as, but not limited to: purple loosestrife (*Lythrum salicaria*), common reed (*Phragmites australis*), Japanese Knotweed (*Polygonum cuspidatum*), reed canary grass (*Phalaris arundinacea*).
- Due to the difficulty of distinguishing the three species of cattails (*Typha latifolia*, *Typha angustifolia*, and *Typha* x *glauca*), as well as the likelihood that at least one of these will be present in many types of New York wetlands, the total relative cover of all invasive species, including *Typha* spp., will be less than 13.75%.
- Upland buffer rehabilitation areas will have no more than 20% relative cover composed of invasive species such as: buckthorn (*Rhamnus cathartica*), honeysuckle (*Lonicera* spp.), reed canary grass (*Phalaris arundinacea*).
- Upland buffer rehabilitation areas will have at least 70% relative cover of native perennials.
- Upland buffer rehabilitation areas are demonstrating progress in vegetative development towards meeting the final VIBI-FQ performance standard and have a minimum VIBI-FQ of 32.

8.3 Third Interim Goal Releases 15% of Credits When:

- The areas meeting wetland criteria will have 75% relative coverage by native perennial hydrophytes.
- The areas meeting wetland criteria are demonstrating progress in vegetative development towards meeting the final VIBI-FQ performance standard and have a minimum VIBI-FQ of 36.
- The areas meeting PSS criteria will have at least 350 shrubs/trees per acre, and those stems will display normal and healthy growth, free of disease and pests. PSS zones will have at least half of the stems growing as shrub species.

- The upland buffer rehabilitation and those areas meeting PFO criteria will have at least 350 shrubs/trees per acre, and those stems will display normal and healthy growth, free of disease and pests. Upland buffer and PFO zones will have at least half of the stems growing as tree species.
- Wetland acreage will have less than 6.5 % relative cover of all non-*Typha* invasive plant species such as, but not limited to: purple loosestrife (*Lythrum salicaria*), common reed (*Phragmites australis*), Japanese Knotweed (*Polygonum cuspidatum*), reed canary grass (*Phalaris arundinacea*).
- Due to the difficulty of distinguishing the three species of cattails (*Typha latifolia, Typha angustifolia*, and *Typha* x *glauca*), as well as the likelihood that at least one of these will be present in many types of New York wetlands, the total relative cover of all invasive species, including *Typha* spp., will be less than 12.5%.
- Upland buffer rehabilitation areas will have no more than 15% relative cover composed of invasive species such as: buckthorn (*Rhamnus cathartica*), honeysuckle (*Lonicera* spp.), reed canary grass (*Phalaris arundinacea*).
- Upland buffer rehabilitation areas will have at least 75% relative cover of native perennials.
- Upland buffer rehabilitation areas are demonstrating progress in vegetative development towards meeting the final VIBI-FQ performance standard and have a minimum VIBI-FQ of 36.

8.4 Final Goal Releases 25% at The End of the 10-Year Monitoring Period

- The wetlands shall have 90% relative coverage by native perennial hydrophytes.
- The areas meeting wetland criteria have met the final VIBI-FQ performance standard of 40.
- The areas meeting PSS criteria will have at least 425 shrubs/trees per acre $\geq$ 1m in height, and those stems will display normal and healthy growth, free of disease and pests. PSS zones will have at least half of the stems growing as shrub species.
- The upland buffer rehabilitation and those areas meeting PFO criteria will have at least 425 shrubs/trees per acre $\geq$ 3" diameter at breast height, and those stems will display normal and healthy growth, free of disease and pests. Upland buffer and PFO zones will have at least half of the stems growing as tree species.
- Wetland acreage will have less than 5 % relative cover of all non-*Typha* invasive plant species such as, but not limited to: purple loosestrife (*Lythrum salic*aria), common reed (Phrag*mites australis*), Japanese Knotweed (*Polygonum cuspidatum*), reed canary grass (*Phalaris arundinacea*).
- Due to the difficulty of distinguishing the three species of cattails (*Typha latifolia*, *Typha angustifolia*, and *Typha* x *glauca*), as well as the likelihood that at least one of these will be present in many types of New York wetlands, the total relative cover of all invasive species, including *Typha* spp., will be less than 10%.
- Upland buffer rehabilitation areas will have no more than 10% relative cover composed of invasive species such as: buckthorn (*Rhamnus cathartica*), honeysuckle (*Lonicera* spp.), reed canary grass (*Phalaris arundinacea*).
- Upland buffer rehabilitation areas will have at least 80% relative cover of native perennials.
- Upland buffer rehabilitation areas have met the final VIBI-FQ performance standard of 40.
- Wetland rehabilitation areas will demonstrate an increase above pre-construction levels in the frequency of saturation or inundation within 12-inches of the surface during the growing-season.

- A Corps approved Long-Term Management Plan has been executed and funded, and the conservation easement endowment has been funded.
- All other obligations and performance standards set forth in the instrument amendment and permit have been met.

To reduce or waive remaining monitoring requirements before the ten-year monitoring period ends, at least two consecutive monitoring reports must satisfactorily meet final success criteria.

8.5 Wetland Hydrology and Hydric Soils

To demonstrate that the requisite wetland hydrology has been established/restored, reestablished wetlands must be inundated (flooded or ponded) or the water table is ≤12 inches below the soil surface for ≥14 consecutive days during the growing season at a minimum frequency of 5 years in 10 (≥50% probability). Any combination of inundation or shallow water table is acceptable in meeting the 14-day minimum requirement. Short-term monitoring data may be used to address the frequency requirement if the normality of rainfall occurring prior to and during the monitoring period each year is considered. The methodology prescribed in the U.S. Army Corps of Engineers "Technical Standard for Water-Table Monitoring of Potential Wetland Sites" (ERDC TN-WRAP-05-2, June 2005) shall be utilized.

Hydrology will be determined through an analysis of water-well data, visual inspections, and review of permanently located water-level gauges. The growing season can be approximated as the period of time between the average date of the last killing frost in the spring to the average date of the first killing frost in the fall, this is usually the beginning of May through September. Growing season beginning and ending dates shall be based on the median dates (i.e., 5 years in 10, or 50 percent probability) of 28 °F air temperatures in spring and fall, according to data from the Niagara Falls, NY weather station.

Reestablished and enhanced wetland areas (Wetlands E and G) are being monitored with two continuously logging water level monitoring wells which commenced in May 2020 (Figure 6). The temporal record of pre-construction conditions is expected to provide two to three full years of baseline data from which to compare pre-vs. post construction hydrology. This record will be augmented with water-level measurements in rehabilitation areas to be performed at one additional continuously logging water level monitoring well and one manual staff gauge/well, to be installed post-construction. Monitoring locations are shown in Appendix B. Moreover, photo-points included in these areas will provide the ability to qualitatively assess the retention of hydrology compared to baseline conditions to augment quantitative methods.

Previous ditching activities have diverted the majority of surface water inputs away from the Site, while repeated tillage of the site has eliminated microtopographic variation and increased surface drainage towards the ditches. In the wetland rehabilitation area, we propose to achieve and document an increase in hydrology over baseline conditions during the growing season. The planned culvert removal and low embankment will impede the previously installed ditches, while grading and reintroduction of microtopography through heavy disking should also increase hydrology within the upper 12" of the soil. Increased hydrology should be visibly demonstrable from photo, staff gauge data, and well data analyses.

9. Monitoring Requirements

9.1 Monitoring Report Requirements

Annual site monitoring will begin after construction is completed and will continue for ten (10) years. Monitoring reports will be submitted as outlined in Table 4. Monitoring locations are shown in Appendix B. Monitoring will consist of the following:

- Post construction, monitoring report complete with photographs, baseline ecological descriptions, as-builts that describe the actual constructed features with 0.5' contours, wetland delineation maps with habitat type breakdowns, delineation data forms, estimates of relative cover of invasive plant species, and a description of any deviation from the Instrument Amendment.
- Aquatic resource delineation broken out by aquatic resource type (e.g. PEM, PSS, PFO, deepwater habitat, vegetated shallows, riverine resources).
- Descriptions of the monitoring inspection protocols used.
- Water depths will be reported from throughout the site from permanent locations, as well as hydrology information derived from Wetland Determination Data Forms completed throughout the site. Locations of each water depth monitoring location and data point will be indicated on the survey map(s). Two permanent monitoring wells are currently installed in the site.
- Concisely describe remedial actions completed during the monitoring year to meet the three success standards – actions such as, replanting, controlling invasive plant species (with biological, herbicidal, or mechanical methods), re-grading the site, adjusting site hydrology, etc.
- Description of other remedial actions taken.
- Report on the status of all erosion control measures on the mitigation site. Identify whether they are functioning. Descriptions of the necessity of any planned additional temporary measures.
- Review of all information collected to meet all performance goals (8.1, 8.2, 8.3, 8.4, 8.5).
- Photographs taken from permanent photo points shown on a site plan.
- List of wildlife observed and other interesting biological occurrences.
- A qualitative description of the general arboreal plant health, vigor and mortality rates, including a prognosis for their future survival will be included along with photos illustrating tree growth.
- All areas >0.1 acre that are dominated by invasives will be mapped and reported.
- VIBI-FQ scores will be recorded for all reestablishment, rehabilitation, and enhancement areas generating credits in years of credit release requests (Years 1, 3, 5, 7, and 10, or by approved variation). VIBI-FQ data sheets will be provided with monitoring report.
- Preservation areas will be visually monitored for changes in conditions, particularly the establishment or increase in invasive species presence. Any notable changes will be identified in the report.

9.2 Reporting Schedule

Monitoring reports, including an As-Built Report will be submitted no later than February 28 and will describe conditions in the prior growing season. The As-Built will be submitted following the completion of construction and planting. The As-Built survey will include a detailed contour map and any deviations from the construction plans. Each report cover sheet shall indicate the year, report number, and Department of Army permit numbers. All reports described in this section will be submitted to the New York IRT and to the District Engineer at the Department of the Army, at the Buffalo District Corps of Engineers 1776 Niagara Street, Buffalo, NY 14207-3199. All monitoring, reporting, requests and adaptive management implementation will be the responsibility of DU. Measures requiring additional soil manipulation or changes in hydrology will be undertaken only after written approval from the Buffalo District Engineer has been obtained.

Table 4 Reporting Schedule

Activity	Description	Year
As-built Report	To be submitted in February, the year following completion of construction and planting	0
1st Monitoring Report	First monitoring report / no credit release requested	1
2nd Monitoring Report	1st Interim Credit Release Request	3
3rd Monitoring Report	2nd Interim Credit Release Request	5
4rth Monitoring Report	3rd Interim Credit Release Request	7
Final Monitoring Report	Final Credit Release Request	10

*Credit release are anticipated to coincide with a given year, but they may deviate based on performance. Reports will be submitted by no later than February of the calendar year following monitoring activities. Monitoring and adaptive management and or corrective actions may extend beyond 10 years if performance criteria have not been met by year 10.

10. Long-term Management Plan, Including Financial Arrangements

In order to provide for a more sustainable approach to long-term management, WAT will transfer ownership of the site to the Long-term Steward following construction. It is anticipated that Western New York Land Conservancy (WNYLC) will be the Long-term Steward; in the event that WNYLC does not take on the role of Long-term Steward, DU would be the default long-term manager until another Steward acceptable to USACE and the IRT is identified. Prior to execution of the Long-Term Management Plan (LTMP), it will be provided to the USACE and IRT for review. DU will provide written notice to the USACE at least 60-days prior to transfer of ownership of the Site to the Long-term Steward. A USACE-approved Conservation Easement and LTMP, and Site Access and Management Easement (SAME), to be held by DU, will be recorded to the deed at the time of transfer. The SAME will outline responsibilities of the Long-term Steward and DU during the active mitigation monitoring period, with DU remaining responsible for adaptive management and monitoring of the Site prior to entrance into the Long-term Management Phase. During the monitoring period, as outlined in the SAME, the Long-term Steward will assist with DU's efforts to maintain the conservation values of the site and meet the objectives of this Instrument Amendment. When the Site enters the long-term management phase, the conditions of the SAME will be satisfied, and a notice of termination of the SAME will be recorded to the Deed.

The responsibilities of the Long-term Steward are outlined in Table 5 and will be further described in the LTMP. Those responsibilities will begin when the final performance standards outlined in Section 8 are signed off on by USACE. It is anticipated entrance into The Long-Term Management phase will occur 10 years following construction. At that time, The Long-term Steward shall implement the LTMP, managing and monitoring the Site to preserve its habitat and conservation values. At the start of the Long-Term Management phase DU will assist The Long-term Steward with updating the baseline site conditions described in the LTMP to reflect current conditions. During the long-term protection phase, the Site will be monitored at least annually by The Long-Term Land Steward, and identification of threats to the Sites' conservation values will trigger adaptive management actions to maintain the integrity of the site. The responsibilities of the Long-term Steward include prevention of erosion, unauthorized use, dumping, as well as adaptive management of invasive plant species, and maintenance of signage designating the area as a protected area.

Funds for Long-term Management will be provided by DU and will be maintained as a non-wasting endowment to cover costs of annual monitoring, management of invasive species as needed, regular maintenance of signs, prevention of dumping, unauthorized use, and any other requirements of the LTMP. Anticipated long-term management activities and their costs are identified in Table 5. At a conservative 4% annual growth rate, we estimate $4,755 will be available annually for maintenance and adaptive management based on a $118,875.00 endowment. Changes to the Long-Term Manager or the LTMP will require approval by USACE. Prior to closure of the Site, and entrance into long-term management, DU will continue to be responsible for adaptive management and site maintenance.

Table 5 Anticipated Long-term Management Needs
Subject to Long-term Steward approval.

Anticipated Management Activity	Stewardship Trigger	Action	Action Frequency	Annual Monitoring Cost	Action Cost	Annual Action Total
Invasive Species	*Greater than 10% coverage of invasive presence; presence of new species*	*e.g., Herbicide spraying and hand pulling*	*1/year*	*$300*	*$1,800*	*$2,100*
Trash Removal/Prevention of Unauthorized Access	*Trash present, damage to site from ATV traffic*	*Prevent access for dumping*	*1/year*	*$300*	*$500*	*$800*
Maintaining posted signs	*Signs damaged, missing*	*Replace/repair signs*	*1/year*	*$200*	*$200*	*$400*
Erosion	*Any erosion that is more than minor or appears to be a threat to long-term stability*	*Stabilize with appropriate materials (rock, plantings, etc.)*	*Every 5 years*	*$100*	*$500*	*$600*
Title Defense Insurance			*1/year*	*NA*	*$75*	*$75*
Contingency (including inflation)	*Actions requiring adaptive management outstrip dedicated available funds for the year*		*1/year*	*NA*	*$780*	*$780*

Total anticipated annual management cost (based on total above)	**$4,755**
Expected interest growth	4%
Total non-wasting stewardship endowment costs (to be self-sustaining)	**$118,875.00**

11. Adaptive Management Plan, Including Addressing Invasive Species Control

An access easement off of River Road provides access for wetland observation or maintenance. Unforeseen environmental conditions can also affect a wetland's viability. Flooding, prolonged drought, invasive species, site degradation (i.e., trash dumping, illegal logging, ATV travel), erosion and vandalism are examples of some adverse conditions that with early detection and proper management can be overcome. Every wetland site has its own unique characteristics that should be addressed with an adaptive management plan for long-term viability. Proper monitoring of the site will ensure adaptive management activities are implemented as new information is gathered. Completion of the regular maintenance activities outlined in Section 7 such as invasive species control and trash removal during routine monitoring trips will reduce the need for larger intervention. DU will regularly review the status of this site to confirm that all necessary activities have been implemented and that adequate hydrology and hydrophytic plant cover has become established to meet performance criteria. After construction, DU will conduct regular monitoring visits during each growing season to evaluate the progress of the site relative to the performance standards outlined in Section 8. Occasional visits may also occur outside of the growing season.

Monitoring visits may include delineating the wetland acreage on-site, observing water levels, evaluating the plant community through vegetation monitoring (i.e., VIBI-FQ, woody stem counts, invasive species cover), inspecting the low embankment, evaluating herbivory, and looking for any damage to the site. Data collected during these visits will be summarized in the monitoring reports outlined in Section 9.1 and compared against the interim goals specified in Sections 8.1-8.5. If any repairs are needed or if the site fails to be meeting any of the interim goals, DU will utilize adaptive management to address the issue(s).

Reestablishment, rehabilitation, and enhancement efforts will focus on recreating and improving wetland function. Techniques will include but are not limited to, invasive plant species control, and planting native vegetation to improve the VIBI-FQ score. Invasive species control methods include, but are not limited to, spraying, hand pulling, and mechanical removal. When monitoring indicates that a performance standard is not being met, the causes for failure will be evaluated to determine if simply more time is needed or whether a remedial action may be required. Remedial action to help the site meet the performance standard shall be taken as soon as practicable once an issue has been identified. Remedial actions may include, but are not limited to: seeding or planting, non-native plant control, and erosion control measures. DU staff will be regularly monitoring the site throughout the growing season and at least once per dormant season in order to minimize the possibility for low embankment failure. Remedial actions requiring earth movement or changes in hydrology will not be implemented without written approval from the USACE.

If USACE in consultation with the IRT, determines that the site (or any portion thereof) is failing to make satisfactory progress towards meeting any performance goal within the monitoring period, DU must develop a remedial action plan to correct the deficiencies, or alternately a reduction of credits may be levied against underperforming areas. In the prior case, the remedial action plan shall be submitted to the IRT within three months of receipt of written notification of deficiencies from USACE. Remedial action plans may include suggested modifications to improve hydrology (e.g., regrading, addition of water control structures, ditch plugs, groundwater dams), and or additional plantings. The IRT shall in a timely manner provide written acceptance of the submitted plan or a modified plan acceptable to the IRT. The

IRT-accepted remedial action plan (as submitted by DU or as modified by the IRT) will then be returned to DU and DU shall implement the measures specified in the remedial action plan within six months or along a timeline as otherwise provided in the remedial action plan. The default and closure provisions are further described in Appendix G. Once the monitoring period is over, the completed wetland will be managed by the Long-term Steward and managed only as needed and specified in the Long-term Stewardship plan.

12. Financial Assurances

Financial assurances for the construction and performance of the Site will be provided by DU in the form of a performance bond. Financial assurances will be established following mitigation plan approval and prior to release of credits from the Site. The financial assurances will extend sufficient financial resources to completely cover the full cost of construction and replanting of the project if necessary, to achieve success. In the project budget (Appendix F) we estimate construction, planting and associated staffing costs at $271,756 Financial assurances shall no longer be required once the compensatory mitigation project has been determined by the district engineer to be successful in accordance with its performance standards. The financial assurances will not be called upon unless DU has exhausted the existing project budget, including all money set aside for contingency and wetland maintenance, excluding the funds to be utilized for the Long-term Stewardship endowment and conservation easement.

References

Ducks Unlimited, Inc. 2005, 2019. International Conservation Plan. Memphis, TN.

Edinger, G.J., D.J. Evans, S. Gebauer, T.G. Howard, D.M. Hunt, and A.M. Olivero (editors). 2014. *Ecological Communities of New York State.* Second Edition. A revised and expanded edition of Carol Reschke's Ecological Communities of New York State. New York Natural Heritage Program, New York State Department of Environmental Conservation, Albany, NY.

Environmental Laboratory, 1987. Corps of Engineers Wetland Delineation Manual (Technical Report Y-87-1) U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg,

Hunter, E.A., Raney, P.A., Gibbs, J.P., and Leopold, D.J. 2012. Improving wetland mitigation site identification through community distribution modeling and a patch-based ranking scheme. Wetlands 32:841–850

McGowan, K.J., Corwin, K., eds 2008. The Second Atlas of Breeding Birds in New York State. Retrieved from https://www.dec.ny.gov/animals/7312.html

National Oceanic and Atmospheric Administration. National Integrated Drought Information System. Available online at https://www.drought.gov/historical-information?dataset Accessed June 2021.

New York State Department of Environmental Conservation. 2010. Waterbody inventory/priority waterbodies list: Niagara River, Lower, Main Stem (0101-0027). Retrieved from https://www.dec.ny.gov/data/WQP/PWL/0101-0027.pdf?req=12203

New York State Department of Environmental Conservation. 2015. State wildlife action plan. Retrieved from http://www.dec.ny.gov/docs/wildlife_pdf/swapfinaldraft2015.pdf

Raney, P.A., Leopold, D.J. 2018. Fantastic wetlands and where to find them: Modeling rich fen distribution in New York State with maxent. Wetlands. 38, 81-93.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed Feb 2021.

United States Fish and Wildlife Service. 1986. North American Waterfowl Management Plan. Department of the Interior, Washington, D.C., USA.

United States Fish and Wildlife Service. 2012. North American Waterfowl Management Plan. Department of the Interior, Washington, D.C., USA.

Wooster, M., Matthies, L. 2008. Buffalo and Niagara Rivers Habitat Assessment and Conservation Framework. Retrieved from https://www.dec.ny.gov/docs/regions_pdf/bnrhabreport.pdf

Appendix A. Wetland Delineation Report

1.0 INTRODUCTION

Ducks Unlimited, Inc. (DU) investigated site conditions at the River Road site between May and August of 2020. The Mitigation Site is located at Latitude: 43°13'23.58" N and Longitude: 79°2'17.47" W off of River Road in the Town of Porter, Niagara County, New York. The Site is 0.4 mile east of the lower Niagara River, which is within the Niagara River 8-digit HUC (HUC 04120104) lying within DU's Niagara River Service Area.

2.0 METHODS

Onsite data collection and wetland boundary delineation of the 76.32-acre property was performed by DU between May 22 and August 12, 2020. The boundaries were delineated following the protocols outlined in the United States Army Corps of Engineers' (USACE) 1987 "Wetland Delineation Manual" and data were collected on the "Regional Supplement to the Corps of Engineers Wetland Delineations Manual: Northcentral and Northeast Region (Version 2.0)" (Regional Supplement). A routine on-site determination was performed as specified in Section D of Chapter IV of the 1987 Delineation Manual. Prior to the delineation survey, the property was walked to identify general topography, drainage patterns, major plant communities, and potential areas of disturbance. Climatic/hydrologic conditions were typical for this time of year.

3.0 RESULTS

Normal circumstances were present at the time of data collection. The most prevalent type of wetland delineated at the Mitigation Site was palustrine emergent (PEM, 30.31 acres) wetlands. The wetland component of the 6.04-acre PEM/upland mosaic (Wetland E) is 70%, equivalent to 4.23 acres of PEM.

Wetland Delineation Map and Datasheets:

River Rd ILF Site (76.32 ac)
PEM (25.51 ac)
70% PEM/30% Upland Mosaic (6.04 ac total)
PFO (30.88 ac)
upland data point
wetland data point
Ditches

N
W
E
S

0 200 400 800 Feet

DUCKS UNLIMITED

Table 1. Delineated Wetlands at the Mitigation Site

Wetland Name	Wetland Type	Wetland Acres	Datapoints	Latitude (N)	Longitude (W)
Wetland A	PEM	4.99	DPW5	43°13'28.63"	79°2'10.288"
			DPW6	43°13'28.143"	79°2'28.282"
Wetland B	PFO	0.81	DPW7	43°13'27.866"	79°2'27.138"
Wetland C	PEM	10.28	DPW3	43°13'23.239"	79°2'27.374"
			DPW4	43°13'21.899"	79°2'15.671"
			DPW12	43°13'21.674"	79°2'7.742"
Wetland D	PFO	0.18	DPW14	43°13'26.033"	79°2'22.64"
Wetland E	70% PEM/30% Upland Mosaic	4.23	DPW13	43°13'25.617"	79°2'10.035"
Wetland F	PFO	0.27	DPW9	43°13'24.884"	79°2'5.799"
Wetland G	PEM	10.24	DPW8	43°13'26.549"	79°2'2.155"
			DPW11	43°13'27.142"	79°1'55.458"
Wetland H	PFO	29.63	DPW1	43°13'21.64"	79°1'56.897"
			DPW2	43°13'30.997"	79°1'55.469"
			DPW10	43°13'26.445"	79°1'52.471"

Table 2: Ditches at the Mitigation Site

Label	Linear Feet
D-1	1,570
D-2	184
D-3	1,676
D-4	695
D-5	1,246

Wetland Datpoints

DPW1. This portion of forested Wetland H was dominated by pin oak (*Quercus palustris*), with gray dogwood (*Cornus racemosa*) and reed canary grass (*Phalaris arundinacea*) in the understory. Primary hydrology indicators included surface water, a high-water table, saturation, sparsely vegetated concave surface, water-stained leaves, and oxidized rhizospheres on living roots. Depleted below dark surface and redox dark surface were the hydric soil indicators. Photo taken May 22, 2020.

DPW2. This portion of forested Wetland H was dominated by American elm (*Ulmus americana*), with gray dogwood (*Cornus racemosa*) and meadow foxtail (*Alopecurus pratensis*) in the understory. Primary hydrology indicators included saturation and oxidized rhizospheres on living roots. A redox dark surface was the hydric soil indicator. Photo taken May 22, 2020.

DPW3. This portion of emergent Wetland C was dominated by meadow foxtail (*Alopecurus pratensis*). Primary hydrology indicators included surface water, a high-water table, saturation, and oxidized rhizospheres on living roots. A depleted matrix was the hydric soil indicator. Photo taken June 2, 2020.

DPW4. This portion of emergent Wetland C was dominated by rough bentgrass (*Agrostis scabra*) and soft rush (*Juncus effusus*). Primary hydrology indicators included surface water, a high-water table, and saturation. A depleted matrix was the hydric soil indicator. Photo taken June 4, 2020.

DPW5. This portion of emergent Wetland A was dominated by green ash (*Fraxinus pennsylvanica*), rough bentgrass (*Agrostis scabra*), and riverbank grape (*Vitis riparia*). The primary hydrology indicator was oxidized rhizospheres on living roots. Depleted below dark surface, a depleted matrix, and redox dark surface were the hydric soil indicators. Photo taken July 17, 2020.

DPW6. This portion of emergent Wetland A was dominated by rough bentgrass (*Agrostis scabra*) and soft rush (*Juncus effusus*). The primary hydrology indicator was oxidized rhizospheres on living roots. Depleted below dark surface and a depleted matrix were the hydric soil indicators. Photo taken July 28, 2020.

DPW7. Forested Wetland B was dominated by black willow (*Salix nigra*) and pin oak (*Quercus palustris*), with teal lovegrass (*Eragrostis hypnoides*) and green ash (*Fraxinus pennsylvanica*) in the understory. Primary hydrology indicators included a sparsely vegetated concave surface and oxidized rhizospheres on living roots. Depleted below dark surface and redox dark surface were the hydric soil indicators. Photo taken July 28, 2020.

DPW8. This portion of emergent Wetland G was dominated by rough bentgrass (*Agrostis scabra*), meadow foxtail (*Alopecurus pratensis*), and common goldentop (*Euthamia graminifolia*). The primary

hydrology indicator was oxidized rhizospheres on living roots. A depleted matrix was the hydric soil indicator. Photo taken August 6, 2020.

DPW9. Forested Wetland F was dominated by pin oak (*Quercus palustris*) and eastern cottonwood (*Populus deltoides*), with green ash (*Fraxinus pennsylvanica*) in the understory. The primary hydrology indicator was oxidized rhizospheres on living roots. Redox dark surface was the hydric soil indicator. Photo taken August 6, 2020.

DPW10. This portion of forested Wetland H was dominated by green ash (*Fraxinus pennsylvanica*), with gray dogwood (*Cornus racemosa*), fox sedge (*Carex vulpinoidea*), and common goldentop (*Euthamia graminifolia*) in the understory. The primary hydrology indicator was oxidized rhizospheres on living roots. A depleted matrix was the hydric soil indicator. Photo taken August 6, 2020.

DPW11. This portion of emergent Wetland G was dominated by soft rush (*Juncus effusus*) and rough bentgrass (*Agrostis scabra*). The primary hydrology indicator was oxidized rhizospheres on living roots. A depleted matrix was the hydric soil indicator. Photo taken August 6, 2020.

DPW12. This portion of emergent Wetland C was dominated by riverbank grape (*Vitis riparia*). The primary hydrology indicator was oxidized rhizospheres on living roots. A depleted matrix was the hydric soil indicator. Photo taken August 12, 2020.

DPW13. Wetland E is a PEM/upland mosaic with the PEM component comprising 70% of the area. This portion of Wetland E was dominated by sensitive fern (*Onoclea sensibilis*) and crooked-stemmed aster (*Symphyotrichum prenanthoides*). The primary hydrology indicator was oxidized rhizospheres on living roots. Depleted below dark surface and a depleted matrix were the hydric soil indicators. Photo taken August 12, 2020.

DPW14. Forested wetland D was dominated by eastern cottonwood (*Populus deltoides*) and black willow (*Salix nigra*), with green ash (*Fraxinus pennsylvanica*) and pin oak (*Quercus palustris*) in the understory. The primary hydrology indicator was oxidized rhizospheres on living roots. Depleted below dark surface, a depleted matrix, and redox dark surface were the hydric soil indicators. Photo taken August 12, 2020.

Upland Datapoints

DPU1. This area, adjacent to the Niagara Scenic Parkway, was dominated by black walnut (*Juglans nigra*), gray dogwood (*Cornus racemosa*), and reed canary grass (*Phalaris arundinacea*). Photo taken May 22, 2020.

DPU2. This area was dominated by rough bentgrass (*Agrostis scabra*) and Canada goldenrod (*Solidago canadensis*). Photo taken June 2, 2020.

DPU3. This area was dominated by rough bentgrass (*Agrostis scabra*) and Canada goldenrod (*Solidago canadensis*). Photo taken June 4, 2020.

DPU4. This area was dominated by Canada goldenrod (*Solidago canadensis*), rough bentgrass (*Agrostis scabra*), and riverbank grape (*Vitis riparia*). Photo taken July 17, 2020.

DPU5. This area was dominated by Canada goldenrod (*Solidago canadensis*). Photo taken July 28, 2020.

DPU6. This area was dominated by Canada goldenrod (*Solidago canadensis*) and Kentucky bluegrass (*Poa pratensis*). Photo taken August 6, 2020.

DPU7. This area was dominated by Canada goldenrod (*Solidago canadensis*), riverbank grape (*Vitis riparia*), and spotted knapweed (*Centaurea stoebe*). Photo taken August 6, 2020.

DPU8. This area was dominated by rough bentgrass (*Agrostis scabra*) and Canada goldenrod (*Solidago canadensis*). Photo taken August 7, 2020.

DPU9. This upland area within a PEM/upland mosaic (Wetland E) was dominated by Canada goldenrod (*Solidago canadensis*). Photo taken August 12, 2020.

DPU10. This area was dominated by Canada goldenrod (*Solidago canadensis*), riverbank grape (*Vitis riparia*), and Kentucky bluegrass (*Poa pratensis*). Photo taken August 12, 2020.

Linear Aquatic Features

Ditch D-1. Facing east along north side of the old roadbed. Approximately 1,570 linear feet (LF), 2 feet wide and 6” deep. Photo taken January 29, 2020.

Ditch D-2. Facing south from culvert inlet. Old corrugated metal culvert to be removed. Approximately 184 linear feet (LF), 2 feet wide and 6” deep. Photo taken January 29, 2020.

Ditch D-3. Facing east along the south side of the old roadbed. Approximately 1,676 linear feet (LF), 2 feet wide and 12” deep. Photo taken January 29, 2020.

Ditch D-4. Facing south from the old roadbed. Approximately 695 linear feet (LF), 5 feet wide and 6” deep. Photo taken March 2016.

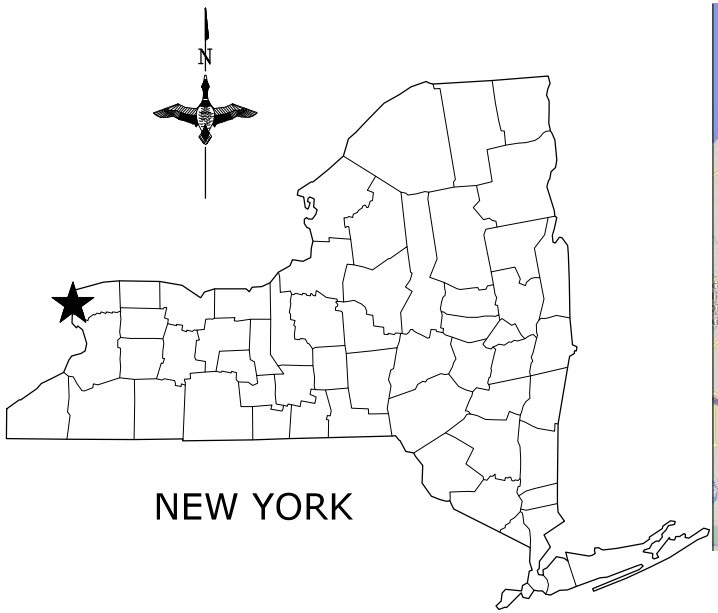
Ditch D-5. Upstream end, facing west along the old roadbed. Approximately 1,246 linear feet (LF), 2 feet wide and 12” deep. Photo taken January 29, 2020.

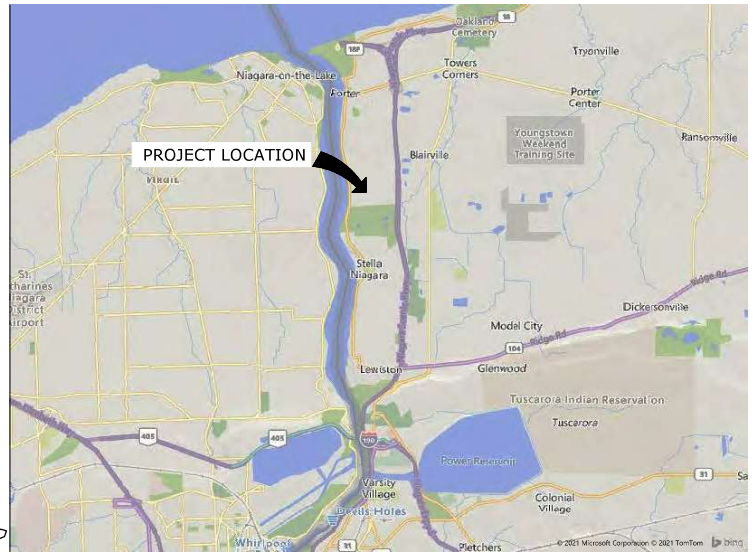
DUCKS UNLIMITED

PERMIT PLAN SET

DUCKS UNLIMITED RIVER ROAD COMPENSATORY MITIGATION PROJECT

NIAGARA RIVER SERVICE AREA
NIAGARA COUNTY, NY





PROJECT LOCATION

LAT. 43.223740, LONG. -79.037209

SPECIFICATIONS

101	GENERAL CONDITIONS
102	SUPPLEMENTAL CONDITIONS
201	MOBILIZATION
202	SITE PREPARATION
203	EXCAVATION
204	EMBANKMENT CONSTRUCTION
205	CONSTRUCTED TOPOGRAPHY
206	WATER
305	RIP-RAP, REVETMENT & AGGREGATE PLACEMENT
401	SOIL EROSION AND POLLUTION CONTROL
402	SEEDING AND MULCHING
404	TRAFFIC MAINTENANCE AND CONTROL

SHEET INDEX

1. COVER SHEET
2. SPECIFICATIONS, NOTES AND E&S DETAILS
3. WETLAND DELINEATION
4. OVERALL SITE PLAN
5. PLAN AND PROFILE
6. EROSION AND SEDIMENT CONTROL PLAN
7. PLANTING PLAN
8. CREDIT GENERATION
9. MONITORING PLAN

811 Know what's below. Call before you dig.

FOR PERMIT

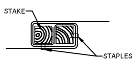
NOTICE: CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. DUCKS UNLIMITED, INC. SHALL NOT ASSUME ANY RESPONSIBILITY FOR THE SAFETY OF THE WORK PERFORMED, PERSONS ENGAGED IN THE WORK, NEARBY STRUCTURES, OR OF OTHER PERSONS ON-SITE.

GREAT LAKES/ATLANTIC REGIONAL OFFICE
7322 NEWMAN BOULEVARD, BUILDING 1
DEXTER, MICHIGAN 48130
(734) 623-2000 www.ducks.org
DUCKS UNLIMITED

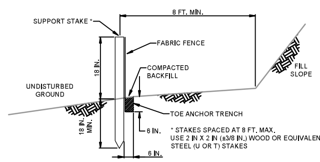
COVER SHEET
RIVER ROAD
COMPENSATORY
MITIGATION PROJECT
YOUNGSTOWN
NIAGARA COUNTY, NY

By	Date	Revisions	Sheet	Revision

CAD FILE: NY-229-2 COVER & SPECS
DESIGNED BY: TJ
DRAWN BY: GB
SURVEYED BY: GB & JP
BIOLOGIST: PR
DATE: 02/01/2021
PROJECT NUMBER: US-NY-229-2
GLARO-NY2-075-1



JOINING FENCE SECTIONS



SECTION VIEW

NOTES:

FABRIC SHALL HAVE THE MINIMUM PROPERTIES AS SHOWN IN THE TABLE FOR STANDARDS AND SPECIFICATIONS FOR SILT FENCE SECTION 5.54 OF THE NY STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.

FABRIC WIDTH SHALL BE 30 IN. MINIMUM. STAKES SHALL BE HARDWOOD OR EQUIVALENT STEEL (U OR T) STAKES.

SILT FENCE SHALL BE PLACED AT LEVEL EXISTING GRADE. BOTH ENDS OF THE FENCE SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.

WHEN TWO SECTIONS OF FILTER CLOTH JOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUAL.

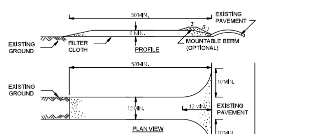
SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH HALF THE ABOVE GROUND HEIGHT OF THE FENCE OR BULGES DEVELOP IN THE SILT FENCE.

ANY SECTION OF SILT FENCE WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE IMMEDIATELY REPLACED.

FENCE SHALL BE REMOVED AND PROPERLY DISPOSED OF WHEN TRIBUTARY AREA IS PERMANENTLY STABILIZED.

1/2 STANDARD SILT FENCE (18" HIGH)

N.T.S.



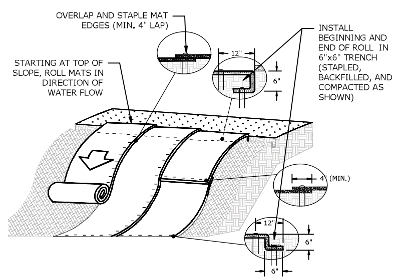
ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET.
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ACCESS SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN EVENT.

2/2 STABILIZED CONSTRUCTION ACCESS

N.T.S.



NOTES:

1. TEMPORARY EROSION CONTROL MAT SHALL BE NORTH AMERICAN GREEN S150BN OR APPROVED EQUAL.
2. SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE MAT.
3. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.
4. MAT SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY MAT LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH MAT.
5. THE MAT SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS BASED ON THE APPLICATION.
6. MATTED AREAS SHALL BE INSPECTED UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 80% COVERAGE THROUGHOUT THE MATTED AREA. DAMAGED OR DISPLACED MATS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

3/2 EROSION CONTROL BLANKETS

N.T.S.

ESTIMATED QUANTITIES

NOTE	SPEC #	ITEM	UNIT	QUANTITY
1	201	MOBILIZATION	LS	1
2	202	SITE PREPARATION - EMBANKMENT & GRADING AREAS	C.Y.-P	1454
3, 4	204	EMBANKMENT CONSTRUCTION	C.Y.-P	577
5	311	REMOVAL OF EXISTING CULVERT	LS	1
6	401	SOIL EROSION AND POLLUTION CONTROL	LS	1
7	402	SEEDING AND MULCHING - STANDARD SEED MIX	AC-P	0.60
8	402	SEEDING - GRADING AREA	AC-P	1.33
9	402	PLANTING PREPARATION - HEAVY DISKING	AC-P	41.19
10	402	EROSION CONTROL BLANKETS	SY	2904

TEMPORARY SEEDING SUMMARY

SEED TYPE	SEEDING DATE	SEEEDING RATE	FERTILIZER	LIME
ANNUAL RYEGRASS	MARCH 1st - NOVEMBER 1st	30 LBS/AC	N/A	N/A
CEREAL RYE	NOVEMBER 1st - MARCH 1st	100 LBS/AC	N/A	N/A

MULCH - 2 TONS/AC - STRAW

PERMANENT SEEDING SUMMARY (STANDARD SEED MIX)

SEED TYPE	SEEDING DATE	SEEEDING RATE	FERTILIZER	LIME
CREEPING RED FESCUE	MARCH 1ST - NOVEMBER 1ST	20 LBS/AC		
PERENNIAL RYEGRASS		10 LBS/AC	5-5-10 @ 600 LBS/AC	N/A
BIRDSFOOT TREFOIL		8 LBS/AC		
ANNUAL RYEGRASS		5 LBS/AC		
REDTOP		2 LBS/AC		

MULCH - 2 TONS/AC STRAW

PLANTING TABLE

Target Area	Common Name	Scientific Name	Wetland Indicator Status	Propagule Type	Quantity/Acre
All Wetland Areas	nodding beggartick	*Bidens cernua*	OBL	seed mix	20 lbs seed mixture acre in PEM areas; 15 lbs seed mixture acre in PSS and PFO areas
	bristly sedge	*Carex comosa*	OBL		
	fringed sedge	*Carex crinita*	OBL		
	hop sedge	*Carex lupulina*	OBL		
	shallow sedge	*Carex lurida*	OBL		
	fox sedge	*Carex vulpinoidea*	OBL		
	spotted Joe pye weed	*Eutrochium maculatum*	OBL		
	soft rush	*Juncus effusus*	OBL		
	rice cutgrass	*Leersia oryzoides*	OBL		
	swamp smartweed	*Persicaria hydropiperoides*	OBL		
	green bulrush	*Scirpus atrovirens*	OBL		
	woolgrass	*Scirpus cyperinus*	OBL		
PSS	silky dogwood	*Cornus amomum*	FACW	bare root/potted	sum to _500 stems acre
	red-osier dogwood	*Cornus sericea*	FACW		
	buttonbush	*Cephalanthus occidentalis*	OBL		
	black willow	*Salix nigra*	OBL		
PFO	red maple	*Acer rubrum*	FAC	bare root/potted	sum to _500 stems acre
	silver maple	*Acer saccharinum*	FACW		
	silky dogwood	*Cornus amomum*	FACW		
	red-osier dogwood	*Cornus sericea*	FACW		
	American sycamore	*Platanus occidentalis*	FACW		
	swamp white oak	*Quercus bicolor*	FACW		
	pin oak	*Quercus palustris*	FACW		
	black willow	*Salix nigra*	OBL		
Upland Buffer	red maple	*Acer rubrum*	FAC	bare root/potted	sum to _500 stems acre
	bitternut hickory	*Carya cordiformis*	FAC		
	burr oak	*Quercus macrocarpa*	FACU		
	pin oak	*Quercus palustris*	FACW		
	American basswood	*Tilia americana*	FACU		
Embankment	redtop	*Agrostis gigantea*	FACW	seed mix	45 lbs seed mixture acre
	creeping red fescue	*Festuca rubra*	FACU		
	annual ryegrass	*Lolium multiflorum*	FACU		
	perennial ryegrass	*Lolium perenne*	FACU		
	birdsfoot trefoil	*Lotus corniculatus*	FACU		

NOTE:

1. PLANTINGS FOR PSS AND PFO WILL BE A MIXTURE OF BARE ROOT PLANTS (75%) AND POTTED (25%).
2. SHRUB AND TREE PLANTINGS NOT INCLUDED IN THIS CONTRACT.

1. BID ITEM FOR MOBILIZATION SHALL INCLUDE THE SUPPLY OF ALL LABOR, MATERIAL AND EQUIPMENT TO TRANSPORT ALL NEEDED LABOR, MATERIAL AND EQUIPMENT TO AND FROM A PROJECT SITE TO SUCCESSFULLY COMPLETE THAT PROJECT AS SHOWN ON THE PLANS OR DESCRIBED BY THE ENGINEER. REFER TO MOBILIZATION SPECIFICATION 201.
2. SITE PREPARATION BID ITEM SHALL INCLUDE STRIPPING BENEATH EMBANKMENT FOOTPRINTS AND GRADING/BORROW AREAS. TOPSOIL SHALL BE STOCKPILED AND REPLACED OVER COMPLETED EMBANKMENTS AND GRADING/BORROW AREAS. BID ITEM SHALL INCLUDE LEVELING AND DRAGGING OR DISKING PRIOR TO PLACEMENT OF SEED MIX. BID ITEM SHALL ALSO INCLUDE ANY BRUSH CLEARING WITHIN CONSTRUCTION AREA, INCLUDING CONSTRUCTION ACCESS AREA. STANDARD SITE PREPARATION WILL NOT BE REQUIRED FOR THE SCARIFICATION AREA (SEE NOTE 2 SHEET 5). REFER TO SITE PREPARATION SPECIFICATION 202.
3. BID ITEM FOR EMBANKMENT CONSTRUCTION SHALL INCLUDE ALL WORK REQUIRED TO BORROW, HAUL, PLACE AND COMPACT FILL MATERIAL TO CONSTRUCT EMBANKMENTS TO THE LINES AND GRADES AS SHOWN ON THE PLANS. THE ESTIMATED QUANTITY FOR EMBANKMENT CONSTRUCTION IS COMPACTED IN PLACE. ALL MATERIAL SHALL BE PLACED IN LOOSE LIFTS NOT MORE THAN EIGHT (8) INCHES IN THICKNESS AND SHALL BE COMPACTED BY SUITABLE COMPACTION EQUIPMENT TO A MINIMUM OF 95% OF MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR METHOD ASTM D698. REFER TO EMBANKMENT CONSTRUCTION SPECIFICATION 204.
4. GRADING OF BORROW AREAS, AS SHOWN ON THE PLANS, WILL BE CONSIDERED INCIDENTAL TO EMBANKMENT CONSTRUCTION.
5. BID ITEM FOR REMOVAL OF EXISTING CULVERT SHALL INCLUDE ALL THE WORK REQUIRED TO EXCAVATE, REMOVE THE EXISTING CULVERT AND BACKFILL TO THE EXISTING SURROUNDING GRADES. REFER TO REMOVAL OF EXISTING CULVERTS AND STRUCTURES SPECIFICATION 311.
6. THE BID ITEM FOR SOIL EROSION AND POLLUTION CONTROL SHALL INCLUDE THE SUPPLY, INSTALLATION AND MAINTENANCE OF THE EROSION AND SEDIMENT CONTROLS SHOWN AND DESCRIBED ON THE DESIGN DRAWINGS AND ANY ADDITIONAL CONTROLS NEEDED TO MAINTAIN COMPLIANCE WITH NEW YORK STATE REGULATIONS UNTIL VEGETATION IS FULLY ESTABLISHED, REPAIR OF ANY DAMAGES RESULTING FROM EROSION OR SEDIMENTATION DURING THIS TIME PERIOD, AND REMOVAL OF TEMPORARY EROSION AND SEDIMENT CONTROLS IMMEDIATELY FOLLOWING FULL VEGETATION ESTABLISHMENT. EXACT LOCATION AND QUANTITY MAY VARY DEPENDING UPON ACTUAL SITE CONDITIONS. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF WORK AND WILL BE MAINTAINED UNTIL FINAL STABILIZATION OF THE SITE. THE CONTRACTOR SHALL BID A LUMP SUM FOR SOIL EROSION AND POLLUTION CONTROL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL, INSPECT AND MAINTAIN ALL BEST MANAGEMENT PRACTICES REQUIRED TO PREVENT SILTATION AND POLLUTION RUNOFF FROM THE WORK AREA. THE CONTRACTOR SHALL PREPARE AND MAINTAIN ON SITE ALL REQUIRED INSPECTION FORMS AND UP-TO-DATE DOCUMENTATION ACCORDING TO THE PERMIT REGULATIONS.
7. BID ITEM SEEDING AND MULCHING THE "STANDARD SEED MIX" (AS SHOWN ON THE PLANTING PLAN) SHALL INCLUDE THE MATERIAL, EQUIPMENT, AND LABOR REQUIRED TO LEVEL AND PREPARE TOPSOIL FOR SEEDING AND MULCHING MATERIAL AND APPLICATION OF SEED, MULCH AND FERTILIZER AS REQUIRED BY THE DESIGN DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHMENT OF A UNIFORM, PERENNIAL VEGETATIVE COVER WITH A DENSITY OF EIGHTY (80) PERCENT, INCLUDING RESEEDING, REMULCHING, AND/OR REFERTILIZING OF BARE AREAS, AS NEEDED. APPROVED MULCH SHALL BE APPLIED TO ALL AREAS SEEDED AS DIRECTED BY THE DU FIELD ENGINEER. MULCH NOT REQUIRED FOR AREAS STABILIZED WITH EROSION CONTROL BLANKETS. REFER TO DU SPECIFICATION 402. PAYMENT WILL BE BASED ON PLANNED ACRES.
   NOTE:
   ANY AREAS DISTURBED BY THE CONTRACTOR THAT ARE NOT DENOTED ON THE PLANS (SUCH AS FOR STAGING OR ACCESS) MUST BE STABILIZED WITH SEED AND MULCH AT NO ADDITIONAL COST.
8. BID ITEM SEEDING THE GRADING AREA SHALL INCLUDE THE MATERIAL, EQUIPMENT, AND LABOR REQUIRED TO LEVEL AND PREPARE TOPSOIL, SEED WITH ANNUAL RYE GRASS OR CEREAL RYE COVER CROP, AND STABILIZE THE AREAS SPECIFIED ON THE PLANTING PLAN (SHEET 7). REFER TO SHEET 7 AND DU SPECIFICATION 402 FOR ADDITIONAL NOTES AND REQUIREMENTS. PAYMENT WILL BE BASED ON PLANNED ACRES.
9. BID ITEM FOR PLANTING PREPARATION - HEAVY DISKING SHALL INCLUDE THE MATERIAL, EQUIPMENT, AND LABOR REQUIRED TO TILL THE ENTIRE PROJECT SITE EXCLUDING THE EARTHEN BERM. REFER TO THE AREAS SPECIFIED ON THE PLANTING PLAN (SHEET 7). REFER TO SHEET 7 AND DU SPECIFICATION 402 FOR ADDITIONAL NOTES AND REQUIREMENTS. PAYMENT WILL BE BASED ON PLANNED ACRES.
10. BID ITEM FOR EROSION CONTROL BLANKETS - SHALL INCLUDE THE SUPPLY AND INSTALLATION OF THE EROSION CONTROL BLANKETS WHICH WILL BE THE ENTIRE EMBANKMENT FOOTPRINT. THE ECB WILL BE PLACED AFTER THE EMBANKMENT HAS BEEN SEEDED AND FERTILIZED (NO MULCH WILL BE REQUIRED TO BE PLACED UNDER THE ECB) TO THE DESIGN DOCUMENTS. TEMPORARY EROSION CONTROL BLANKETS SHALL BE NORTH AMERICAN GREEN S150BN OR APPROVED EQUAL.

THE CONSTRUCTION NOTES HEREIN ARE NOT ALL INCLUSIVE. REFER TO THE FULL GENERAL & SUPPLEMENTAL CONDITIONS FOR WETLAND RESTORATION AND STANDARD CONSTRUCTION SPECIFICATIONS FOR WETLAND RESTORATION.

SEQUENCE OF CONSTRUCTION

1. HOLD PRE-CONSTRUCTION MEETING.
2. NOTIFY SEDIMENT CONTROL INSPECTOR 24 HOURS PRIOR TO START OF CONSTRUCTION.
3. PERFORM GRUBBING REQUIRED FOR INSTALLATION OF PERIMETER CONTROLS.
4. INSTALL PERIMETER CONTROLS, NOTIFY SEDIMENT CONTROL INSPECTOR AND OBTAIN APPROVAL BEFORE PROCEEDING FURTHER.
5. PERFORM SITE PREPARATION WORK AND CLEARING. STOCKPILE TOPSOIL TO BE USED LATER.
6. COMPLETE EXCAVATION, GRADING AND EMBANKMENT CONSTRUCTION.
7. SPREAD TOPSOIL BACK ACROSS ALL DISTURBED AREAS.
8. COMPLETE WETLAND SEEDING PREPARATION (HEAVY DISKING).
9. COMPLETE SEEDING AND STABILIZATION.
10. NOTIFY SEDIMENT CONTROL INSPECTOR AND OBTAIN APPROVAL TO REMOVE SEDIMENT AND EROSION CONTROL FOR PROJECT.
11. CONTRACTOR WILL REMOVE EROSION CONTROL MEASURES UPON APPROVAL FROM DESIGNATED INSPECTOR.

NOTE:
NOTIFY THE SEDIMENT CONTROL INSPECTOR AS TO ANY SEDIMENT AND EROSION CONTROL CONCERNS THAT ARISE.

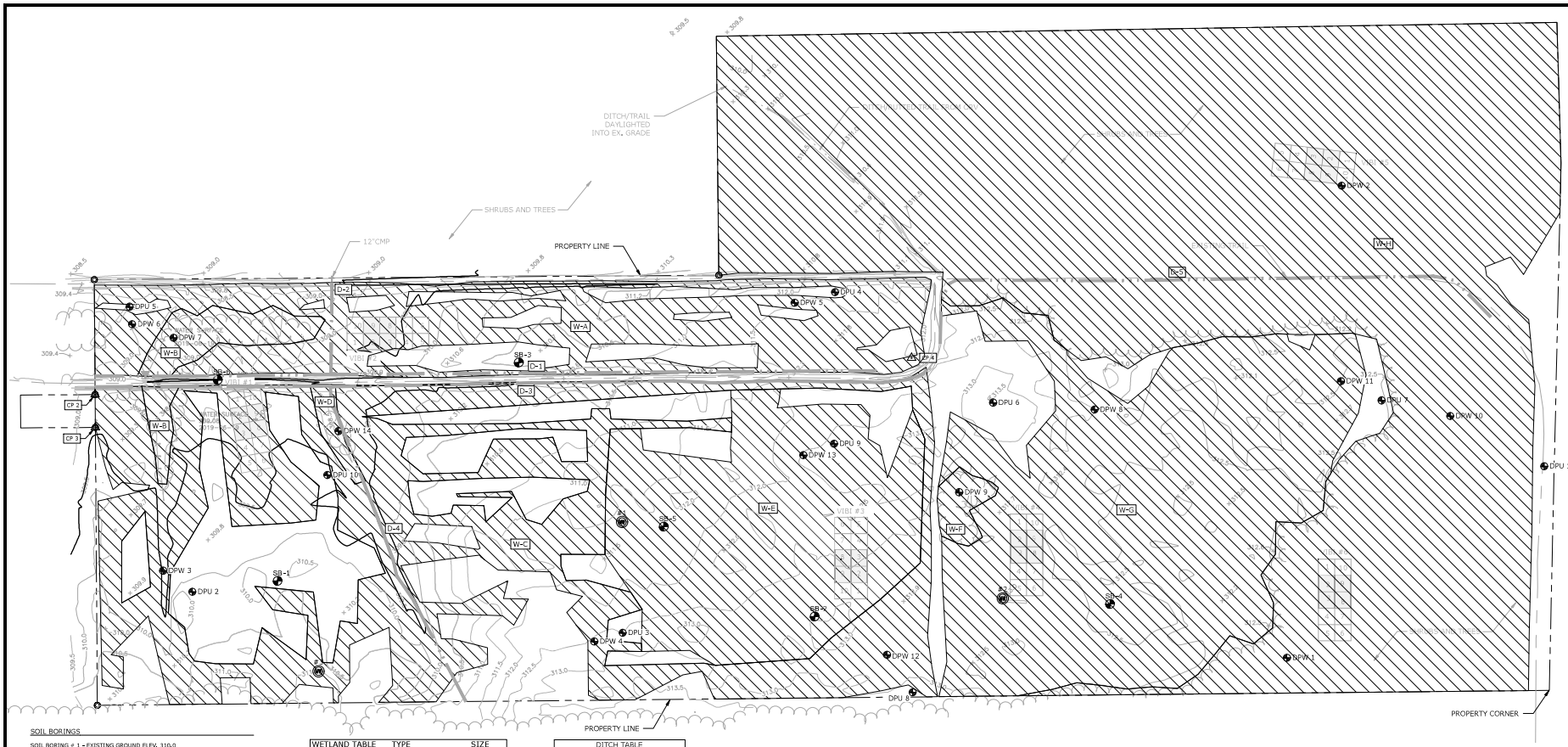
FOR PERMIT

GREAT LAKES/ATLANTIC REGIONAL OFFICE
7322 NEWMAN BOULEVARD, BUILDING 1
DEXTER, MICHIGAN 48130
(734) 623-2000 www.ducks.org
DUCKS UNLIMITED

SPECFICATION, NOTES AND E&S DETAILS
RIVER ROAD
COMPENSATORY
MITIGATION PROJECT
YOUNGSTOWN
NIAGARA COUNTY, NY

Revision	Sheet	Revisions	Date	By

CAD FILE: NY-229-2 COVER & SPECS
DESIGNED BY: TJ
DRAWN BY: GB
SURVEYED BY: GB & JP
BIOLOGIST: PR
DATE: 02/01/2021
PROJECT NUMBER: US-NY-229-2
GLARO-NY2-075-2



SOIL BORINGS

SOIL BORING # 1 - EXISTING GROUND ELEV. 310.0
0" - 2" ORGANIC ROOT MAT
2" - 10" MEDIUM BROWN SILTY CLAY, HIGH PLASTICITY
10" - 15" SILTY CLAY W/RUST MOTTLING, SMALL GRAVEL ¼" TO 1-1/2"
15" - 18" SILTY CLAY W/RUST MOTTLING, SMALL GRAVEL ¼", NO SAND
18" - 19" SILTY CLAY W/ 2" ROUND ROCK
21" REFUSAL, ROCKS PREVENT FURTHER DEPTH
21" WATER SEEPING INTO BORE HOLE

SOIL BORING #2 - EXISTING GROUND ELEV. 312.5
0" - 8" ORGANIC WITH FINE GRAVEL, DARK BROWN
8" - 13" SILTY CLAY PRESENT SLIGHTLY
13" - 14" ORANGE LIGHT BROWN SILTY CLAY
14" - 21" LIGHT BROWN HEAVY SILTY CLAY
21" - 25" LIGHT BROWN HEAVY SILTY CLAY
25" - 29" LIGHT BROWN HEAVY SILTY CLAY
29" - 33" SAND WITH CLAY, SOAKO
24" GROUND WATER LEVEL

SOIL BORING #3 - EXISTING GROUND ELEV. 310.4
0" - 8" ORGANIC
8" - 19" LIGHT BROWN SILTY CLAY WITH SLIGHT MOTTLING REDDISH, SMALL ROUND GRAVEL ¼" TO ½"
19" - 25" SILTY CLAY LOAM
25" - 30" DRY LIGHT BROWN & GRAYISH HEAVY DENSE SILTY CLAY
NO WATER OBSERVED

SOIL BORING #4 - EXISTING GROUND ELEV. 313.6
0" - 9" CLAYEY SILT, LITTLE ROOTS, TRACE FINE SAND, BROWN WITH GRAY AND RED (ML)
MOTTLING AND STREAKS, MOIST
9" - 33" SILTY CLAY, LITTLE FINE SAND, TRACE TO NO FINE GRAVEL, BROWN, MOIST (CL)
SAND SEAMS NOTED BETWEEN 14" AND 20",
9" GROUND WATER LEVEL

SOIL BORING #5 - EXISTING GROUND ELEV. 311.8
0" - 17" SILTY CLAY, LITTLE ORGANICS, TRACE FINE TO COARSE SAND, DARK BROWN, MOIST (CL)
17" - 22" SILTY CLAY, TRACE ORGANICS, TRACE FINE TO COARSE SAND, DARK BROWN WITH RUST, MOIST (CL)
22" - 39" SILTY CLAY, TRACE FINE TO COARSE SAND, TRACE ORGANICS, BROWN WITH DARK BROWN MOTTLING AND RUST (CL)
COBBLE ENCOUNTERED AT APPROXIMATELY 34",
13" GROUND WATER LEVEL

SOIL BORING #6 - EXISTING GROUND ELEV. 309.6
0" - 8" TOPSOIL (ORGANIC CLAYEY SILT), LITTLE FINE GRAVEL, LITTLE FINE SAND, DARK BROWN, MOIST)
8" - 10" SILT, SOME FINE GRAVEL, LITTLE FINE SAND, TRACE CLAY, DARK BROWN, MOIST (ML)
10" - 14" CLAYEY SILT, LITTLE FINE GRAVEL, LITTLE FINE SAND, DARK BROWN, MOIST (ML)
14" - 20" TRANSITIONS TO SILTY CLAY, LITTLE FINE SAND, LITTLE FINE GRAVEL, BROWN, MOIST (CL)
20" - 33" SILTY CLAY, LITTLE TO TRACE FINE SAND, TRACE FINE GRAVEL, BROWN WITH DARK BROWN MOTTLING AND RUST, MOIST (CL)
31" GROUND WATER LEVEL

WETLAND TABLE	TYPE	SIZE
WETLAND A	PEM	4,99 AC,
WETLAND B	PFO	0,81 AC,
WETLAND C	PEM	10,28 AC,
WETLAND D	PFO	0,18 AC,
WETLAND E	PEM/UPLAND MOSAIC (70% PEM 4,23 AC./30% UPLAND 1,81 AC. MOSAIC)	6,04 AC,
WETLAND F	PFO	0,27 AC,
WETLAND G	PEM	10,24 AC,
WETLAND H	PFO	29,63 AC.

PEM - TOTALS (25,51 AC.)
PEM/UPLAND MOSAIC - TOTALS (6,04 AC.)
PFO - TOTALS (30,88 AC.)

NOTES:
1. WETLANDS A, C, G, AND H EXTEND BEYOND THE PROPERTY BOUNDARY,
2. WETLAND A CONTINUES OFF THE PROPERTY ACROSS THE WESTERN BORDER,
3. WETLAND C CONTINUES OFF THE PROPERTY ACROSS THE WESTERN AND SOUTHERN BORDERS,
4. WETLAND G CONTINUES OFF THE PROPERTY ACROSS THE SOUTHERN BORDER,
5. WETLAND H CONTINUES OFF THE PROPERTY ACROSS THE NORTHERN, EASTERN, AND SOUTHERN BORDERS,
6. WETLAND DELINEATION PERFORMED BY DUCKS UNLIMITED AND FINALIZED AUGUST 12 , 2020.

NOTES:
1. DUCKS UNLIMITED COLLECTED THE SURVEY DATA ON JUNE 18-20, 2019, THE SURVEY DATA WAS COLLECTED USING TRIMBLE R10 GPS RECEIVERS BY RTK METHOD,
2. SITE CONDITIONS WERE VERY WET FROM PREVIOUS RAIN EVENTS AND DURING THE SURVEY, THE SITE WAS HEAVILY VEGETATED WITH TALL GRASS AND SHRUBS,
3. PROPERTY LINES SHOWN HEREON THIS DRAWING ARE SHOWN FROM A BOUNDARY SURVEY BY GPI (GREENMAN - PEDERSEN, INC.) FOR DUCKS UNLIMITED, THE PROPERTY LINES AND CORNERS WERE VERIFIED IN THE FIELD DURING THE COURSE OF THIS TOPOGRAPHIC SURVEY BY DUCKS UNLIMITED,
4. THE HORIZONTAL DATUM IS NAD83 NEW YORK STATE PLANE COORDINATES, WEST ZONE 3103, US SURVEY FEET, AND THE VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).

DITCH TABLE	
LABEL	LINEAR FEET
D-1	1570
D-2	184
D-3	1676
D-4	695
D-5	1246

LEGEND
- EXISTING 2 TRACK ROAD / TRAIL ℄
- EXISTING DITCH ℄
- EXISTING SPOT ELEVATION (x 000.0)
- EXISTING VIBI PLOTS (SDM, 20M; 10 9 8 7 6 / 1 2 3 4 5)
- EXISTING MAJOR CONTOUR (0.5' INTERVAL) (000.0)
- EXISTING MINOR CONTOUR (0.5' INTERVAL) (000.0)
- EXISTING TREE LINE
- APPROXIMATE PROPERTY LINE
- FOUND PROPERTY CORNER
- SURVEY CONTROL
- BENCHMARK
- MONITORING WELL (MW)
- SOIL BORING (SB)
- DPU DATAPOINT UPLAND
- DPW DATAPOINT WETLAND
- DELINEATED WETLAND

N

GRAPHIC SCALE
100 0 50 100 200 400
1 inch = 100 feet

FOR PERMIT

NOTICE: CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR, DUCKS UNLIMITED, INC, SHALL NOT ASSUME ANY RESPONSIBILITY FOR THE SAFETY OF THE WORK PERFORMED, PERSONS ENGAGED IN THE WORK, NEARBY STRUCTURES, OR OF OTHER PERSONS ON-SITE.

THIS MATERIAL, DATA AND INFORMATION IS THE PROPERTY OF DUCKS UNLIMITED, INC. IT MAY NOT BE USED OR REPRODUCED FOR ANY PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF AN AUTHORIZED AGENT OF DUCKS UNLIMITED, INC, DUCKS UNLIMITED, INC, MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND REGARDING THIS MATERIAL, DATA AND INFORMATION, INCLUDING, BUT NOT LIMITED TO, THE ACCURACY OF THE MATERIAL, DATA AND INFORMATION OR ITS SUITABILITY FOR ANY PURPOSE. ALL USE OF THE MATERIAL, DATA AND INFORMATION IS AT THE USERS SOLE RISK. BY USING ANY OF THIS MATERIAL, DATA AND INFORMATION, USER AGREES THAT DUCKS UNLIMITED, INC. IS NOT RESPONSIBLE FOR THEIR USE OF THE MATERIAL, DATA AND INFORMATION OR THE RESULTS THEREOF.

GREAT LAKES/ATLANTIC REGIONAL OFFICE
7322 NEWMAN BOULEVARD, BUILDING 1
DEXTER, MICHIGAN 48130
(734) 623-2000 www.ducks.org
DUCKS UNLIMITED

WETLAND DELINEATION
RIVER ROAD
COMPENSATORY
MITIGATION PROJECT
YOUNGSTOWN
NIAGARA COUNTY, NY

By	Date	Revisions	Sheet	Revision

CAD FILE: NY-229-2 Wetland Delineation
DESIGNED BY: TJ
DRAWN BY: GB
SURVEYED BY: GB & JP
BIOLOGIST: PR
DATE: 02/01/2021
PROJECT NUMBER: US-NY-229-2
GLARO-NY2-075-3

C:\Civil 3D Projects\NY-229-2 River Road 11\FCSD_DRAWING\NY-229-2 Wetland Delineation.dwg, 6/23/2021 2:38 PM, Gregg Bachman, WETLAND DELINEATION 100 SC, None

SOIL BORINGS

SOIL BORING # 1 - EXISTING GROUND ELEV. 310.0
0" - 2" ORGANIC ROOT MAT
2" - 10" MEDIUM BROWN SILTY CLAY, HIGH PLASTICITY
10" - 15" SILTY CLAY W/RUST MOTTLING, SMALL GRAVEL ¼" TO 1-1/2"
15" - 18" SILTY CLAY W/RUST MOTTLING, SMALL GRAVEL ¼", NO SAND
18" - 19" SILTY CLAY W/ 2" ROUND ROCK
21" REFUSAL, ROCKS PREVENT FURTHER DEPTH
21" WATER SEEPING INTO BORE HOLE

SOIL BORING #2 - EXISTING GROUND ELEV. 312.5
0" - 8" ORGANIC WITH FINE GRAVEL, DARK BROWN
8" - 13" SILTY CLAY PRESENT SLIGHTLY
13" - 14" ORANGE LIGHT BROWN SILTY CLAY
14" - 21" LIGHT BROWN HEAVY SILTY CLAY
21" - 25" LIGHT BROWN HEAVY SILTY CLAY
25" - 29" LIGHT BROWN HEAVY SILTY CLAY
29" - 33" SAND WITH CLAY, SO-SO
24" GROUND WATER LEVEL

SOIL BORING #3 - EXISTING GROUND ELEV. 310.4
0" - 8" ORGANIC
8" - 19" LIGHT BROWN SILTY CLAY WITH SLIGHT MOTTLING REDDISH, SMALL ROUND GRAVEL ¼" TO ½"
19" - 25" SILTY CLAY LOAM
25" - 30" DRY LIGHT BROWN & GRAYISH HEAVY DENSE SILTY CLAY
NO WATER OBSERVED

SOIL BORING #4 - EXISTING GROUND ELEV. 313.6
0" - 9" CLAYEY SILT, LITTLE ROOTS, TRACE FINE SAND, BROWN WITH GRAY AND RED MOTTLING AND STREAKS, MOIST
9" - 33" SILTY CLAY, LITTLE FINE SAND, TRACE TO NO FINE GRAVEL, BROWN, MOIST (CL)
SAND SEAMS NOTED BETWEEN 14" AND 20",
9" GROUND WATER LEVEL

SOIL BORING #5 - EXISTING GROUND ELEV. 311.8
0" - 17" SILTY CLAY, LITTLE ORGANICS, TRACE FINE TO COARSE SAND, DARK BROWN, MOIST (CL)
17" - 22" SILTY CLAY, TRACE ORGANICS, TRACE FINE TO COARSE SAND, DARK BROWN WITH RUST, MOIST (CL)
22" - 39" SILTY CLAY, TRACE FINE TO COARSE SAND, TRACE ORGANICS, BROWN WITH DARK BROWN MOTTLING AND RUST (CL)
COBBLE ENCOUNTERED AT APPROXIMATELY 34",
13" GROUND WATER LEVEL

SOIL BORING #6 - EXISTING GROUND ELEV. 309.6
0" - 8" TOPSOIL (ORGANIC CLAYEY SILT, LITTLE FINE GRAVEL, LITTLE FINE SAND, DARK BROWN, MOIST)
8" - 10" SILT, SOME FINE GRAVEL, LITTLE FINE SAND, TRACE CLAY, DARK BROWN, MOIST (ML)
10" - 14" CLAYEY SILT, LITTLE FINE GRAVEL, LITTLE FINE SAND, DARK BROWN, MOIST (ML)
14" - 20" TRANSITIONS TO SILTY CLAY, LITTLE FINE SAND, LITTLE FINE GRAVEL, BROWN, MOIST (CL)
20" - 33" SILTY CLAY, LITTLE TO TRACE FINE SAND, TRACE FINE GRAVEL, BROWN WITH DARK BROWN MOTTLING AND RUST, MOIST (CL)
31" GROUND WATER LEVEL

LEGEND

- PROPOSED EMBANKMENT ℄
- PROPOSED CHANNEL/DITCH
- (000) PROPOSED MAJOR CONTOUR
- (000) PROPOSED MINOR CONTOUR
- + 000.0 PROPOSED SPOT ELEVATION
- PROPOSED FULL SERVICE LEVEL (FSL)
- EXISTING DIKE ℄
- EXISTING DITCH ℄
- PROPOSED EXCAVATION GRADING
- PROPOSED EMBANKMENT & FILL GRADING
- × 000.0 EXISTING SPOT ELEVATION
- 000.0 EXISTING MAJOR CONTOUR (0.5' INTERVAL)
- 000.0 EXISTING MINOR CONTOUR (0.5' INTERVAL)
- EXISTING TREE LINE
- EXISTING 2 TRACK ROAD / TRAIL
- APPROXIMATE PROPERTY LINE
- FOUND PROPERTY CORNER
- SURVEY CONTROL
- BENCHMARK
- MONITORING WELL
- SB SOIL BORING
- DELINEATED WETLAND

N

GRAPHIC SCALE
100 0 50 100 200 400
1 inch = feet

CONTROL POINT DATA

POINT #	NORTH	EAST	ELEVATION	TYPE	NOTES
1	1175074.40	1025203.35	310.26	CORS	X
2	1175081.28	1026186.61	309.29	RTK	FIR
3	1175015.33	1026187.03	309.59	RTK	FIR
4	1175154.89	1027826.54	312.26	RTK	SIR

811 Know what's below. Call before you dig.

FOR PERMIT

NOTICE: CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR, DUCKS UNLIMITED, INC. SHALL NOT ASSUME ANY RESPONSIBILITY FOR THE SAFETY OF THE WORK PERFORMED, PERSONS ENGAGED IN THE WORK, NEARBY STRUCTURES, OR OF OTHER PERSONS ON-SITE.

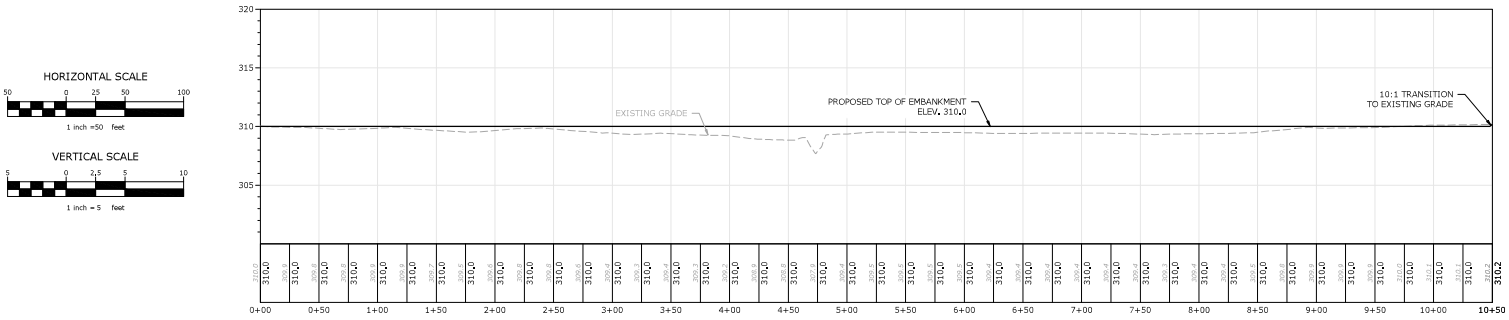
DUCKS UNLIMITED
GREAT LAKES/ATLANTIC REGIONAL OFFICE
7322 NEWMAN BOULEVARD, BUILDING 1
DEXTER, MICHIGAN 48130
(734) 623-2000 www.ducks.org

SITE PLAN
RIVER ROAD
COMPENSATORY
MITIGATION PROJECT
YOUNGSTOWN
NIAGARA COUNTY, NY

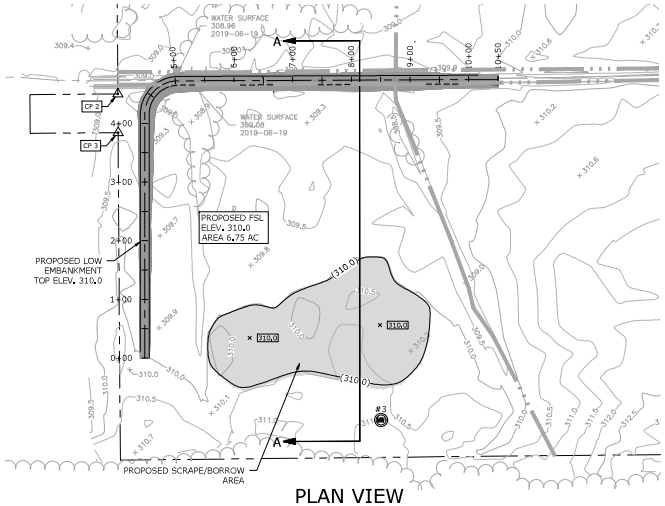
By	Date	Revisions	Sheet	Revision

CAD FILE: NY-229-2 Overall Site Plan
DESIGNED BY: TJ
DRAWN BY: GB
SURVEYED BY: GB & JP
BIOLOGIST: PR
DATE: 02/01/2021
PROJECT NUMBER: US-NY-229-2
GLARO-NY2-075-4

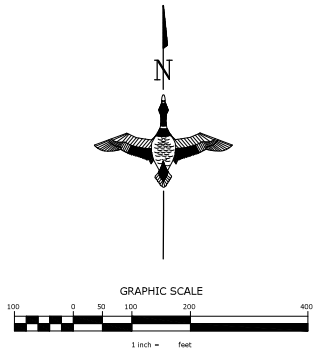
C:\Civil 3D Projects\NY-229-2 River Road 11\FCSD_DRAWING\NY-229-2 Overall Site Plan.dwg, 6/23/2021 2:38 PM, Gregg Bachman, PERMIT_Site Plan, None



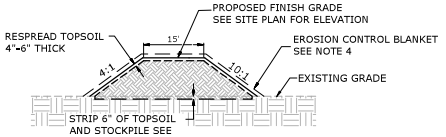
PROFILE LOW EMBANKMENT



PLAN VIEW



DOWNSTREAM SIDE UPSTREAM SIDE

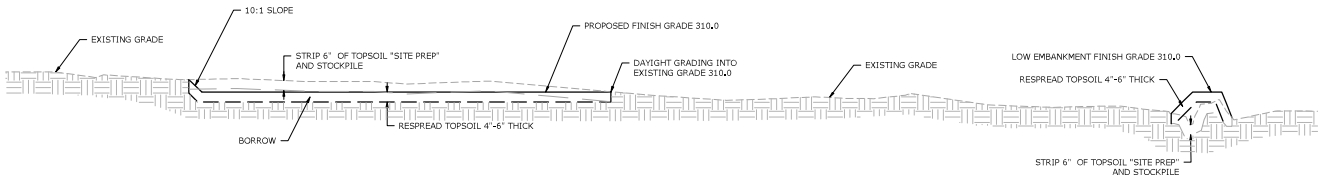


TYPICAL EMBANKMENT SECTION

NOT TO SCALE

NOTE:

1. STRIP 6 INCHES OF TOPSOIL FROM STATION 0+00 TO STATION 4+70 AND STOCKPILE (SITE PREP).
2. FROM STATION 4+70 TO STATION 10+50 SCARIFY THE TOP WIDTH OF THE ACCESS TRAIL AND LEAVE IN PLACE, THEN STRIP THE TOPSOIL FROM THE REMAINING EMBANKMENT FOOTPRINT AREA AND STOCKPILE.
3. RESPREAD TOPSOIL OVER CONSTRUCTED EMBANKMENT TO PLAN ELEVATION.
4. AFTER SEEDING PLACE EROSION CONTROL BLANKETS OVER THE ENTIRE EMBANKMENT FOOTPRINT.



SECTION A-A

LEGEND

- PROPOSED TOP OF FINISH GRADE
- EXISTING GRADE
- SITE PREP
- (000) PROPOSED MAJOR CONTOUR
- (000) PROPOSED MINOR CONTOUR
- + 00.0 PROPOSED SPOT ELEVATION

HORIZONTAL SCALE
30 0 15 30 60
1 inch =30 feet

VERTICAL SCALE
3 0 1.5 3 6
1 inch = 3 feet

811 Know what's below. Call before you dig.

FOR PERMIT

DUCKS UNLIMITED
GREAT LAKES/ATLANTIC REGIONAL OFFICE
7322 NEWMAN BOULEVARD, BUILDING 1
DEXTER, MICHIGAN 48130
(734) 623-2000 www.ducks.org

PLAN AND PROFILE
RIVER ROAD
COMPENSATORY
MITIGATION PROJECT
YOUNGSTOWN
NIAGARA COUNTY, NY

By	Date	Revisions	Sheet	Revision

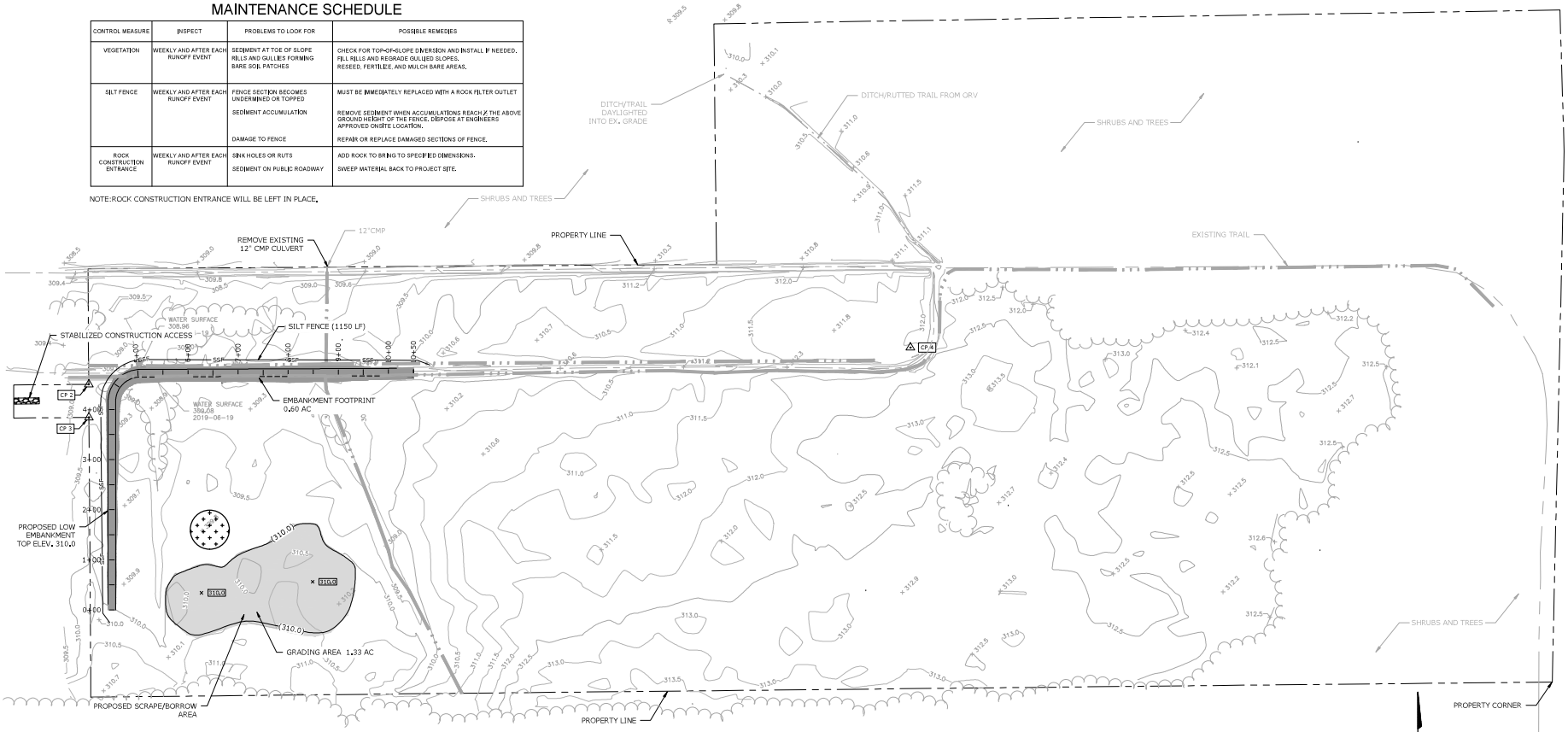
CAD FILE: NY-229-2 Overall Site Plan
DESIGNED BY: TJ
DRAWN BY: GB
SURVEYED BY: GB & JP
BIOLOGIST: PR
DATE: 02/01/2021
PROJECT NUMBER: US-NY-229-2
GLARO-NY2-075-5

C:\Civil 3D Projects\NY-229-2 River Road II\FC3D_DRAWING\NY-229-2 Overall Site Plan.dwg, 6/23/2021 2:38 PM, Gregg Bachman, PERMIT_Profile, None

MAINTENANCE SCHEDULE

CONTROL MEASURE	INSPECT	PROBLEMS TO LOOK FOR	POSSIBLE REMEDIES
VEGETATION	WEEKLY AND AFTER EACH RUNOFF EVENT	SEDIMENT AT TOE OF SLOPE RILLS AND GULLIES FORMING BARE SOIL PATCHES	CHECK FOR TOP-OF-SLOPE DIVERSION AND INSTALL IF NEEDED. FILL RILLS AND REGRADE GULLIED SLOPES. RESEED, FERTILIZE, AND MULCH BARE AREAS.
SILT FENCE	WEEKLY AND AFTER EACH RUNOFF EVENT	FENCE SECTION BECOMES UNDERMINED OR TOPPED SEDIMENT ACCUMULATION DAMAGE TO FENCE	MUST BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET REMOVE SEDIMENT WHEN ACCUMULATIONS REACH ½ THE ABOVE GROUND HEIGHT OF THE FENCE. DISPOSE AT ENGINEERS APPROVED ONSITE LOCATION. REPAIR OR REPLACE DAMAGED SECTIONS OF FENCE.
ROCK CONSTRUCTION ENTRANCE	WEEKLY AND AFTER EACH RUNOFF EVENT	SINK HOLES OR RUTS SEDIMENT ON PUBLIC ROADWAY	ADD ROCK TO BRING TO SPECIFIED DIMENSIONS. SWEEP MATERIAL BACK TO PROJECT SITE.

NOTE:ROCK CONSTRUCTION ENTRANCE WILL BE LEFT IN PLACE.



LEGEND

- APPROXIMATE PROPERTY LINE
- PROPOSED EMBANKMENT ℄
- PROPOSED CHANNEL/DITCH
- (000) PROPOSED MAJOR CONTOUR
- (000) PROPOSED MINOR CONTOUR
- 000.0 PROPOSED SPOT ELEVATION
- EXISTING DITCH ℄
- PROPOSED EXCAVATION GRADING
- PROPOSED EMBANKMENT & FILL GRADING (TO BE COVERED WITH ECB AS SPECIFIED IN DETAIL 3 SHEET 2)
- SSF PROPOSED SILT FENCE (DETAIL 1 ON SHEET 2)
- PROPOSED TEMPORARY CONSTRUCTION ACCESS (DETAIL 2 ON SHEET 2)
- TEMPORARY SOIL STOCKPILE AREA
- x 000.0 EXISTING SPOT ELEVATION
- 000.0 EXISTING MAJOR CONTOUR (0.5' INTERVAL)
- 000.0 EXISTING MINOR CONTOUR (0.5' INTERVAL)
- EXISTING TREE LINE
- EXISTING 2 TRACK ROAD / TRAIL
- FOUND PROPERTY CORNER
- SURVEY CONTROL
- BENCHMARK

SEDIMENT & EROSION CONTROL NOTES:

1. REFER TO SHEET 2 FOR SEQUENCE OF CONSTRUCTION. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL COMPLY WITH NEW YORK STATE REGULATIONS AND THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL (BLUE BOOK), PLACEMENT AND INSTALLATION TECHNIQUES TO BE APPROVED BY THE DUCKS UNLIMITED ENGINEER PRIOR TO INSTALLATION.
2. TEMPORARY STOCKPILE LOCATION IS REPRESENTATIVE AND MAY BE ADJUSTED WITH APPROVAL OF THE DUCKS UNLIMITED ENGINEER. ALL TEMPORARY STOCKPILES MUST BE LOCATED OUTSIDE DELINEATED WETLANDS.
3. EROSION CONTROL BLANKETS (ECB) WILL BE PLACED ON THE ENTIRE FOOTPRINT OF THE EMBANKMENT & FILL GRADING AREA. 2904 SY.
4. APPROXIMATELY 1,150 LF OF SILT FENCE REQUIRED.

N

GRAPHIC SCALE

100 0 50 100 200 400

1 inch = feet

811 Know what's below. Call before you dig.

FOR PERMIT

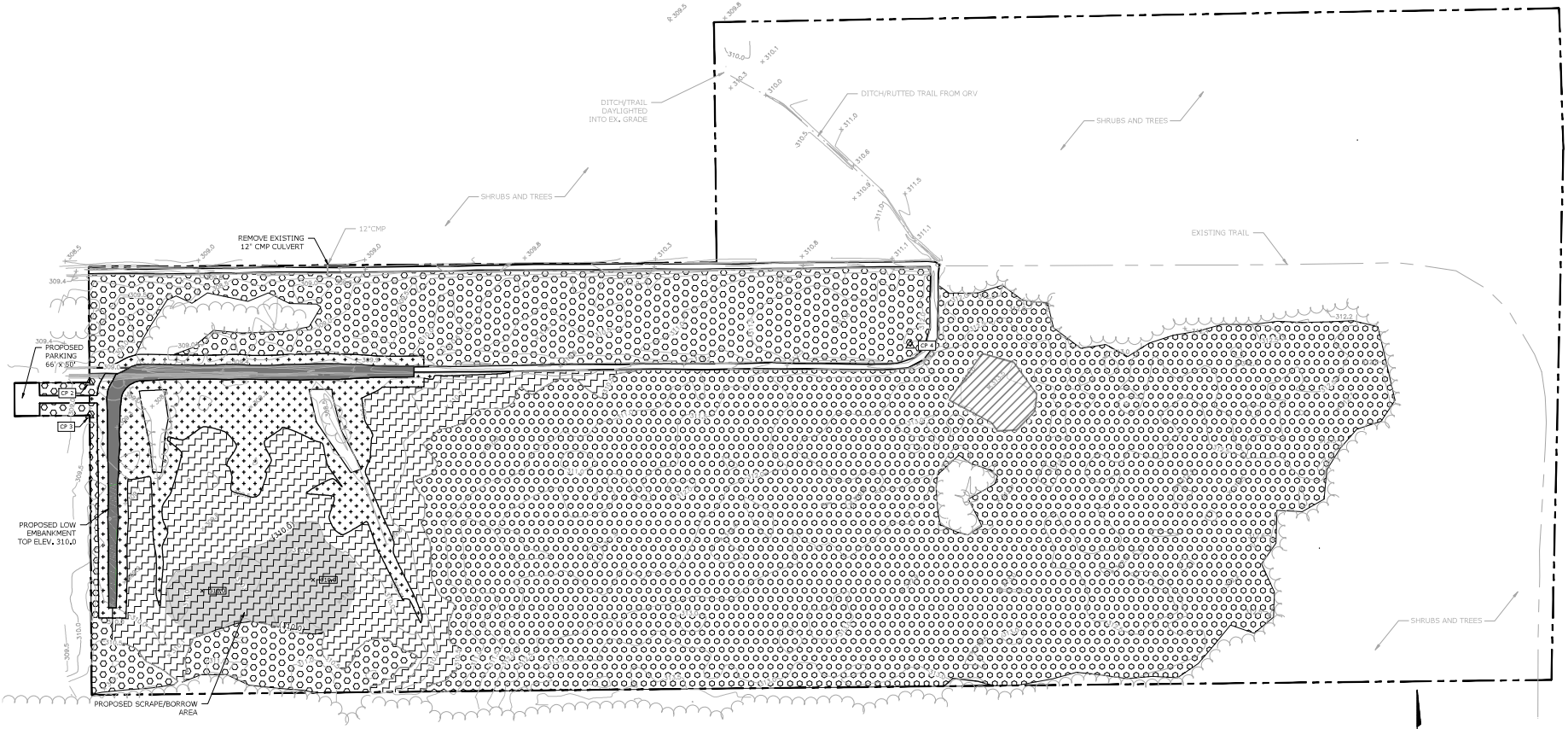
DUCKS UNLIMITED
GREAT LAKES/ATLANTIC REGIONAL OFFICE
7322 NEWMAN BOULEVARD, BUILDING 1
DEXTER, MICHIGAN 48130
(734) 623-2000 www.ducks.org

EROSION AND SEDIMENT CONTROL PLAN
RIVER ROAD COMPENSATORY MITIGATION PROJECT
YOUNGSTOWN
NIAGARA COUNTY, NY

By	Date	Revisions	Sheet	Revision

CAD FILE: NY-229-2 E&S PLAN
DESIGNED BY: TJ
DRAWN BY: GB
SURVEYED BY: GB & JP
BIOLOGIST: PR
DATE: 02/01/2021
PROJECT NUMBER: US-NY-229-2

GLARO-NY2-075-6



LEGEND

- APPROXIMATE PROPERTY LINE
- PROPOSED EMBANKMENT ℄
- PROPOSED CHANNEL/DITCH
- (000) PROPOSED MAJOR CONTOUR
- (000) PROPOSED MINOR CONTOUR
- x 000.0 PROPOSED SPOT ELEVATION
- PROPOSED EXCAVATION GRADING
- PROPOSED EMBANKMENT & FILL GRADING
- EXISTING 2 TRACK ROAD / TRAIL ℄
- EXISTING DITCH ℄
- x 000.0 EXISTING SPOT ELEVATION
- 000.0 EXISTING MAJOR CONTOUR (0.5' INTERVAL)
- 000.0 EXISTING MINOR CONTOUR (0.5' INTERVAL)
- EXISTING TREE LINE
- FOUND PROPERTY CORNER
- SURVEY CONTROL
- BENCHMARK

PLANTING PLAN LEGEND

- PEM: 2.73 ACRES WETLAND SEED MIX
- PSS: 5.85 ACRES PLANTINGS AND WETLAND SEED MIX
- PFO: 33.66 ACRES PLANTINGS AND WETLAND SEED MIX
- UPLAND BUFFER PLANTING 0.38 ACRES
- STANDARD SEED MIX: 0.60 ACRES (EMBANKMENT) REFER TO SHEET 2 FOR SEEDING SUMMARY
- ANNUAL RYE GRASS OR CEREAL RYE COVER CROP: 1.33 ACRES
- MONITORING ACCESS AREA NO PLANTING: 0.88 ACRES

NOTES: SEEDING PEM, PSS, & PFO

1. DUCKS UNLIMITED WILL PROVIDE AND APPLY THE WETLAND SEED MIX (MATERIAL SEED). THE APPLICATION RATE FOR THE PEM IS 20 LB/AC. THE APPLICATION RATE FOR THE PSS AND PFO AREAS IS 15 LB/AC.
2. PEM, PSS, AND PFO AREAS TO BE SEEDED SHALL BE PREPARED BY HEAVY DISKING. ALL AREAS REQUIRING GRADING SHALL BE FINISHED TO THE GRADES SHOWN ON THE PLANS WITH TOPSOIL AS SPECIFIED, AND A MINIMUM OF 6 INCHES OF SURFACE SOIL SHALL BE IN A LOOSE CONDITION. A MINIMUM OF TWO PASSES (PERPENDICULAR TO EACH OTHER) WITH A CHISEL PLOW, HEAVY OFFSET DISK, OR OTHER APPROVED TILLAGE EQUIPMENT IS REQUIRED. ADDITIONAL PASSES MAY BE NECESSARY TO ACHIEVE THE DESIRED SURFACE ROUGHNESS. AFTER SEEDING, NO EQUIPMENT WILL BE REQUIRED TO ACCESS THE WETLAND AREAS FOR PLANTINGS OR OTHER ACTIVITIES. ANY EQUIPMENT MOVEMENT OVER SEEDED AREAS SHOULD BE MINIMIZED TO THE EXTENT PRACTICABLE. MULCH WILL NOT BE REQUIRED FOR AREAS RECEIVING DISKING UNLESS ORDERED BY THE ENGINEER. REFER TO CONSTRUCTION NOTES ON SHEET 2.
3. UNDER ITEM 402 FOR PEM GRADING AREAS, THE CONTRACTOR IS RESPONSIBLE FOR PREPARING THE SOIL SURFACE, PROVIDING AND APPLYING THE ANNUAL RYE GRASS OR CEREAL RYE SEED. THE APPLICATION RATE FOR THE ANNUAL RYE GRASS COVER CROP IS 30 LB/AC AND CEREAL RYE COVER CROP IS 100LB/AC. REFER TO DU SPECIFICATION 402 FOR ADDITIONAL REQUIREMENTS. REFER TO CONSTRUCTION NOTES ON SHEET 2.
4. PLANTINGS FOR PFO AND PSS SHALL BE A MIXTURE OF BARE ROOT (75%) AND POTTED (25%).
5. REFER TO STANDARD SEED MIX SUMMARY ON SHEET 2 FOR REQUIREMENTS AND SEE CONSTRUCTION NOTES FOR ADDITIONAL SEEDING INFORMATION.

811 Know what's below. Call before you dig.

N

GRAPHIC SCALE

100 0 50 100 200 400

1 inch = feet

FOR PERMIT

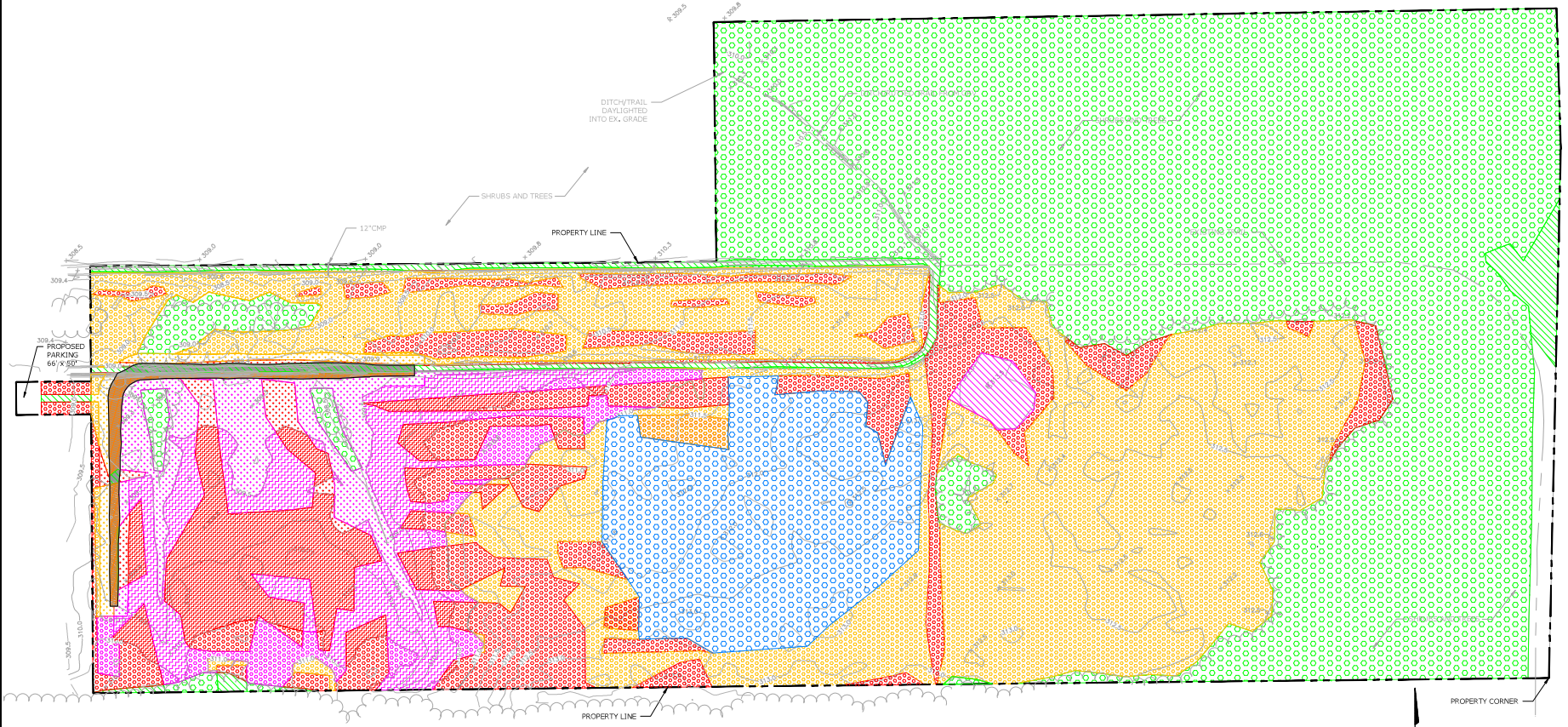
DUCKS UNLIMITED
GREAT LAKES/ATLANTIC REGIONAL OFFICE
7322 NEWMAN BOULEVARD, BUILDING 1
DEXTER, MICHIGAN 48130
(734) 623-2000 www.ducks.org

PLANTING PLAN
RIVER ROAD
COMPENSATORY
MITIGATION PROJECT
YOUNGSTOWN
NIAGARA COUNTY, NY

By	Date	Revisions	Sheet	Revision

CAD FILE: NY-229-2 PLANTING PLAN
DESIGNED BY: TJ
DRAWN BY: GB
SURVEYED BY: GB & JP
BIOLOGIST: PR
DATE: 02/01/2021
PROJECT NUMBER: US-NY-229-2
GLARO-NY2-075-7

C:\Civil 3D Projects\NY-229-2 River Road II\FC3D_DRAWING\NY-229-2 PLANTING PLAN.dwg, 6/23/2021 2:38 PM, Gregg Bachman, PERMIT_PLANTING PLAN, None



LEGEND

- APPROXIMATE PROPERTY LINE
- EXISTING 2 TRACK ROAD / TRAIL ℄
- EXISTING DITCH ℄
- EXISTING SPOT ELEVATION
- EXISTING MAJOR CONTOUR (0.5' INTERVAL)
- EXISTING MINOR CONTOUR (0.5' INTERVAL)
- EXISTING TREE LINE
- FOUND PROPERTY CORNER
- SURVEY CONTROL

CREDIT GENERATION LEGEND

- PEM ENHANCEMENT AREA: 0.43 ACRES
- PEM REESTABLISHMENT AREA: 0.45 ACRES
- PEM REHABILITATION AREA: 1.85 ACRES
- PEM PRESERVATION AREA: 0.15 ACRES
- PSS REESTABLISHMENT AREA: 2.94 ACRES
- PSS REHABILITATION AREA: 2.91 ACRES
- PFO ENHANCEMENT AREA: 18.52 ACRES
- PFO REESTABLISHMENT AREA: 7.80 ACRES
- PFO REHABILITATION AREA: 1.30 ACRES
- PFO PRESERVATION AREA: 30.88 ACRES
- PFO ENHANCEMENT 70% 4.23 ACRES
  PFO REESTABLISHMENT 30% 1.81 ACRES
- UPLAND BUFFER REHABILITATION AREA: 0.38 ACRES
- UPLAND BUFFER PRESERVATION AREA: 1.59 ACRES
- WETLAND IMPACT AREA: 0.36 ACRES
- EMBANKMENT FOOTPRINT

N

GRAPHIC SCALE

100 0 50 100 200 400

1 inch = feet

811 Know what's below. Call before you dig.

FOR PERMIT

NOTICE: CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; DUCKS UNLIMITED, INC. SHALL NOT ASSUME ANY RESPONSIBILITY FOR THE SAFETY OF THE WORK PERFORMED, PERSONS ENGAGED IN THE WORK, NEARBY STRUCTURES, OR OF OTHER PERSONS ON-SITE.

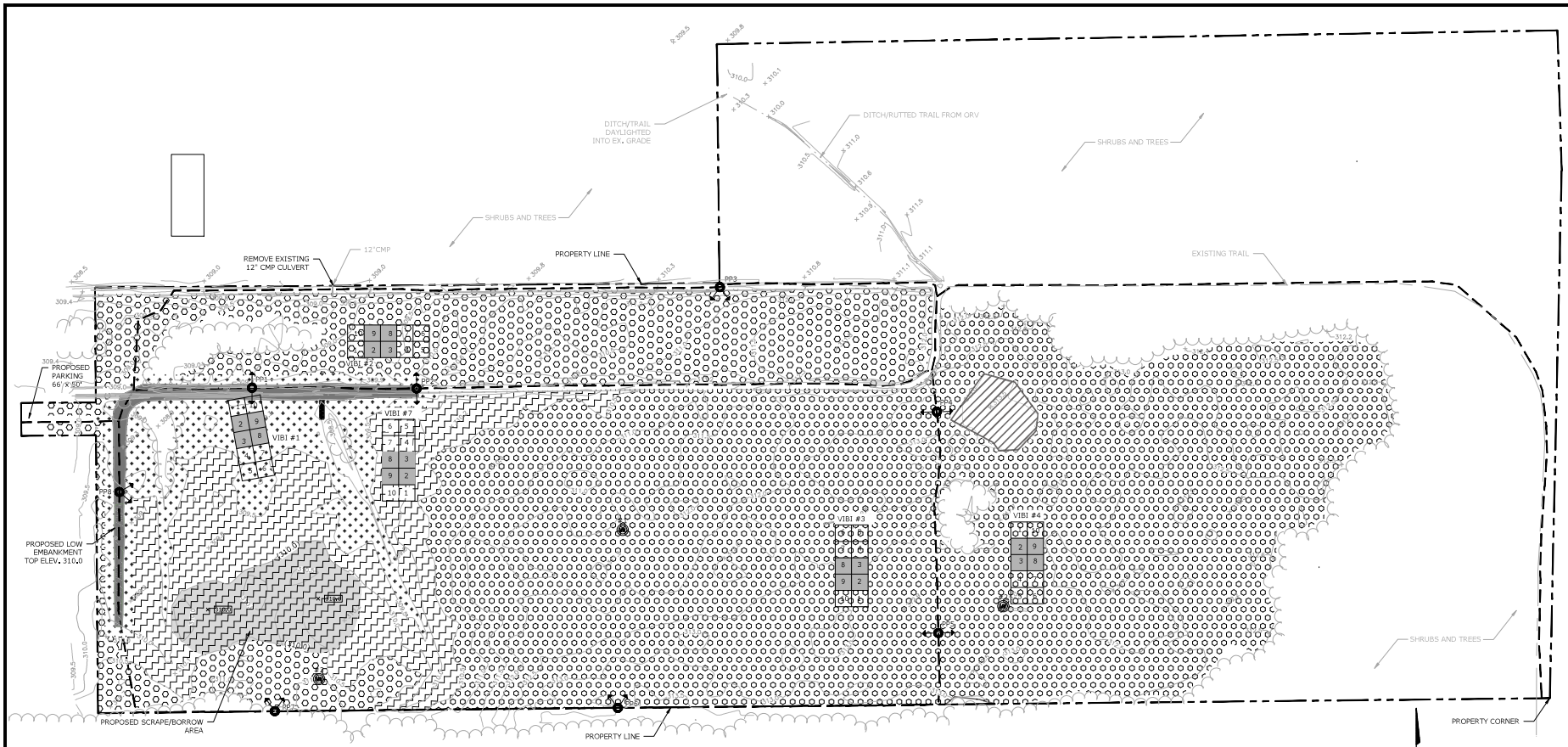
DUCKS UNLIMITED
GREAT LAKES/ATLANTIC REGIONAL OFFICE
7322 NEWMAN BOULEVARD, BUILDING 1
DEXTER, MICHIGAN 48130
(734) 623-2000 www.ducks.org

CREDIT GENERATION
RIVER ROAD
COMPENSATORY
MITIGATION PROJECT
YOUNGSTOWN
NIAGARA COUNTY, NY

By	Date	Revisions	Sheet	Revision

CAD FILE: NY-229-2 PLANTING PLAN
DESIGNED BY: TJ
DRAWN BY: GB
SURVEYED BY: GB & JP
BIOLOGIST: PR
DATE: 02/01/2021
PROJECT NUMBER: US-NY-229-2
GLARO-NY2-075-8

C:\Civil 3D Projects\NY-229-2 River Road II\FC3D_DRAWING\NY-229-2 PLANTING PLAN.dwg, 6/23/2021 2:38 PM, Gregg Bachman, PERMIT_CREDIT GENERATION, None

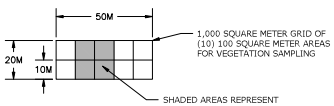


PLANTING PLAN LEGEND

- PEM: 2.73 ACRES
- PSS: 5.85 ACRES
- PFO: 33.66 ACRES
- UPLAND BUFFER: 0.38 ACRES

LEGEND

- APPROXIMATE PROPERTY LINE
- EXISTING 2 TRACK ROAD / TRAIL ℄
- EXISTING DITCH ℄
- EXISTING SPOT ELEVATION
- EXISTING MAJOR CONTOUR (0.5' INTERVAL)
- EXISTING MINOR CONTOUR (0.5' INTERVAL)
- EXISTING TREE LINE
- FOUND PROPERTY CORNER
- SURVEY CONTROL
- MONITORING WELL
- MONITORING ACCESS PATH
- PHOTO POINT LOCATION
- STAFF GAUGE



MONITORING VIBI PLOT DETAIL

811 Know what's below. Call before you dig.

N

GRAPHIC SCALE

100 0 50 100 200 400

1 inch = feet

FOR PERMIT

NOTICE: CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. DUCKS UNLIMITED, INC. SHALL NOT ASSUME ANY RESPONSIBILITY FOR THE SAFETY OF THE WORK PERFORMED, PERSONS ENGAGED IN THE WORK, NEARBY STRUCTURES, OR OF OTHER PERSONS ON-SITE.

DUCKS UNLIMITED
GREAT LAKES/ATLANTIC REGIONAL OFFICE
7322 NEWMAN BOULEVARD, BUILDING 1
DEXTER, MICHIGAN 48130
(734) 623-2000 www.ducks.org

MONITORING PLAN
RIVER ROAD
COMPENSATORY
MITIGATION PROJECT
YOUNGSTOWN
NIAGARA COUNTY, NY

By	Date	Revisions	Sheet	Revision

CAD FILE: NY-229-2 PLANTING PLAN
DESIGNED BY: TJ
DRAWN BY: GB
SURVEYED BY: GB & JP
BIOLOGIST: PR
DATE: 02/01/2021
PROJECT NUMBER: US-NY-229-2
GLARO-NY2-075-9

C:\Civil 3D Projects\NY-229-2 River Road II\FC3D_DRAWING\NY-229-2 PLANTING PLAN.dwg, 6/23/2021 2:38 PM, Gregg Bachman, PERMIT_MONITORING1, None

NEW YORK STATE OF OPPORTUNITY. Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ERIK KULLESEID
Commissioner

September 23, 2020

Mr. Edward Farley, Mitigation Specialist
Ducks Unlimited
159 Dwight Park Circle, Suite 205
Syracuse, NY 13209

Re: USACE
River Road Wetland Restoration Mitigation Site
Porter, Niagara County, NY
18PR08151

Dear Mr. Farley:

Thank you for requesting the comments of the New York State Historic Preservation Office (SHPO). We have reviewed the Phase I Archaeological Reconnaissance Survey prepared by the Archaeological Survey (UBuffalo) (Whalen & Lackos, August 2020; 20SR00453), in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include other environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

Based upon this review, it is our office's understanding that no archaeological sites were identified during the above noted investigations. It is therefore the opinion of the New York SHPO that no historic properties, including archaeological and/or historic resources, will be affected by this undertaking. This recommendation pertains only to the Area of Potential Effects (APE) examined during the above-referenced investigation. It is not applicable to any other portion of the project property. Should the project design be changed SHPO recommends further consultation with this office.

If you have any questions, I can be reached via e-mail at Josalyn.Ferguson@parks.ny.gov.

Sincerely,

Josalyn Ferguson, Ph.D.
Scientist Archaeology

via e-mail only

c.c. Diana Carter, NYS OPRHP
c.c. Steven Metivier, USACE

Appendix D. Threatened and Endangered Species Review

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
http://www.fws.gov/northeast/nyfo/es/section7.htm

In Reply Refer To: June 30, 2021
Consultation Code: 05E1NY00-2021-SLI-3260
Event Code: 05E1NY00-2021-E-10046
Project Name: River Rd Wetland Mitigation

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). This list can also be used to determine whether listed species may be present for projects without federal agency involvement. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list.

Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list. If listed, proposed, or candidate species were identified as potentially occurring in the project area, coordination with our office is encouraged. Information on the steps involved with assessing potential impacts from projects can be found at: http://www.fws.gov/northeast/nyfo/es/section7.htm

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the Services wind

energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the ESA. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

Project Summary

Consultation Code: 05E1NY00-2021-SLI-3260
Event Code: 05E1NY00-2021-E-10046
Project Name: River Rd Wetland Mitigation
Project Type: LAND - RESTORATION / ENHANCEMENT
Project Description: Wetland mitigation project for Ducks Unlimited New York ILF Program
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.223543,-79.03630088231513,14z

Counties: Niagara County, New York

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

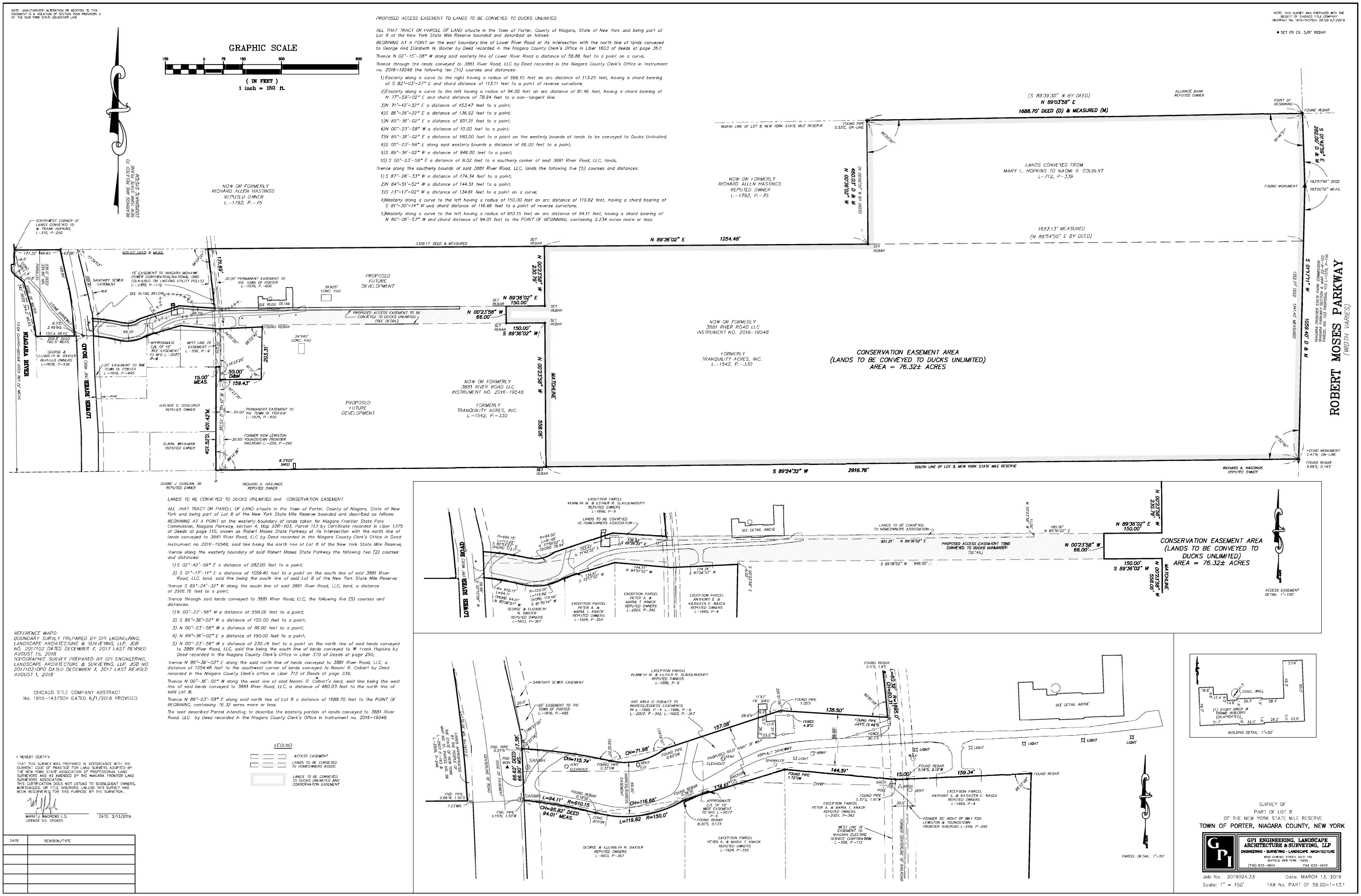
---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Appendix E. Conservation Easement Boundary



Appendix G. Default and Closure Provisions

Default

If the IRT determines that the Sponsor is in material default of any provision of the Instrument or an approved mitigation plan, the IRT, acting through the USACE, shall provide notice of the specific circumstances or actions which constitute a default(s) in writing to the Sponsor and providing a reasonable period of time to cure the default. If the Sponsor does not remedy the default or provide a remedial action plan acceptable to the IRT in a timely manner, the USACE may take appropriate action. Such actions may include, but are not limited to, suspending credit sales, decreasing available credits, approving the use of funds at an alternate location, taking enforcement actions, calling upon financial assurances, or terminating the Instrument. In the event that the DU-NY-ILF program is terminated, DU is responsible for fulfilling any remaining obligations for credits sold. Default closure procedures for either the entire ILF Instrument or a specific service area may proceed within thirty (30) days upon written notification by either the Buffalo District Engineer or Ducks Unlimited. In the event that either the ILF Instrument or a specific service area is closed, DU is responsible for fulfilling any remaining obligations for credits sold prior to closure unless the obligation is specifically transferred to another entity as agreed to by the District Engineer and DU. DU shall be reimbursed from the ILF program account for all costs incurred in fulfilling the remaining obligations. The Corps may review and approve use of these funds to purchase credits from another source of third-party mitigation or disburse funds to a governmental or non-profit natural resource management entity willing to undertake further compensation activities. The Corps itself cannot accept directly, retain, or draw upon those funds in the event of a default.

Instrument Closure Provisions

Any funds remaining in the program account after the mitigation obligations are satisfied must be used for the restoration and/or preservation of aquatic resources and associated upland buffers within the service area in which the funds reside unless otherwise approved by the District Engineer.

The final release of credits will take place once the IRT concurs that all the performance standards and obligations have been met and the final wetland delineation has been verified. The final number of mitigation credits will be based upon attainment of performance standards and a wetlands delineation completed by DU or its affiliates and verified by USACE following the final monitoring year. Final closure of the ILF Site will take place after all approved mitigation credits have been sold. DU shall continue to comply with the sale reporting requirements of the Instrument Amendment until such time as all credits have been sold. Should DU request the ILF Site be formally closed prior to sale of all released credits, the remaining unsold credits will be forfeited by the site and no further sales may occur.